# CASIO
# IT-3100 Series
# Hardware Manual

**(Version 1.02)**

**CASIO Computer Co., Ltd.**

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**September 2008**

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# Editorial Record

| Manual Version no. | Date edited | Page | Content |
|---|---|---|---|
| 1.00 | August 2008 | all | Original version |
| 1.01 | August 2008 | 6, 65 | In Chapters 1 and 5, the explanation about DT-882RSC and DT-883RSC cables is deleted because of phased out products. |
| | | 7 | Option power cords for AD-S42120B are added in Chapter 1.2. |
| | | all | Explanation about DT-9020ADP AC Adaptor is deleted because of phased out product. |
| 1.02 | September 2008 | 8 | In Chapter 1.2, the content in Table 1.2 is updated. |
| | | 10 | In Chapter 1.3, Figure 1.1 is updated. |
| | | 21 | In Chapter 2.1, the parameters of Bluetooth are added in Table 2.1. |
| | | all | The description about the AC Adaptors, AD-S42120AE and AD-S42120AE-CN is deleted, |
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# 1. Overview of the Products

## 1.1 Features

### Supporting the outstanding development environment

- Windows® CE 5.0 English Version as the integrated OS
- Visual Studio 2005
- Visual Studio .NET 2003 (Windows® CE .NET Utilities v 1.1 for Visual Studio .NET 2003)
- eMbedded Visual C++ 4.0

### Outstanding performance/Large memory

- High performance CPU Marvell® PXA255 Application Processor (maximum 400 MHz)
- Large capacity memory RAM : 128MB
  F-ROM : 96MB

### Enhanced communication functions

- Enables WWAN, WLAN, etc. with a card available from third party.
- High speed infrared communication with IrDA Ver1.1
- Bluetooth® Version 1.2

### Support industrial standard symbologies

- Readable 1D symbologies:
  UPC-A, UPC-E, EAN8, EAN13, Codabar, Code11, Code39, Code93, Code128, ITF, MSI, IATA, GS1 DataBar Omnidirectional, GS1 DataBar Limited, GS1 DataBar Expanded, GS1 DataBar Stacked, GS1 DataBar Expanded Stacked
- Readable 2D symbologies:
  PDF417, MicroPDF, Code49, Composite, Codablock F, TLC39, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Expanded Stacked, Aztec, DataMatrix, Maxicode, QR Code

### Various industrial standard interfaces

- SD card slot
- PC card slot
- 14-pin serial
- 8-pin serial (model dependant)

### Improved durability

- Impact resistance to fall : 1.2 m in height*
- Dust and Water-splash proof : IP54 level (compliant with IEC60529 International Standard)

* ; The drop durability height is a measured value resulting from actual testing. It does not necessarily guarantee the product from damage.

## 1.2 Available Models and Options

Table 1.1 List of the available models

| Model no. | Blueto oth | MCR | C-MOS Imager | RS-232C I/F | | Printer | Remark |
|---|---|---|---|---|---|---|---|
| | | | | 8-pin | 14-pin | | |
| IT-3100M53E | Yes | - | - | Yes | Yes | Yes | |
| IT-3100M54E | Yes | Yes | - | Yes | Yes | Yes | |
| IT-3100M55E | Yes | Yes | Yes | - | Yes | Yes | |
| IT-3100M55U | Yes | Yes | Yes | - | Yes | Yes | |
| IT-3100M56E | Yes | - | Yes | - | Yes | Yes | |
| IT-3100M56U | Yes | - | Yes | - | Yes | Yes | |
| IT-3100M53E-CN | Yes | - | - | Yes | Yes | Yes | See note. |
| IT-3100M54E-CN | Yes | Yes | - | Yes | Yes | Yes | |
| IT-3100M55E-CN | Yes | Yes | Yes | - | Yes | Yes | |
| IT-3100M56E-CN | Yes | - | Yes | - | Yes | Yes | |

Note:
"-CN" in the "Model no." box denotes that the model is dedicated for the final destination of China. A note about the compliance with the Chinese "RoHS" requirement promulgated by the Ministerial Decree No. 39 is accompanied in the carton box, the RoHS compliant seal is affixed on the body and the seal of the packing material recycle marking is affixed on the carton box.

Table 1.2 List of the options

| Model no. | Product | Remark |
|---|---|---|
| HA-B61IO | Bridge Satellite Cradle | |
| HA-B61IO-CN | Bridge Satellite Cradle | See note 1. |
| HA-B34AT | Battery Charger Car Mount Unit | |
| HA-B34AT-CN | Battery Charger Car Mount Unit | See note 1. |
| HA-B30CHG | Cradle-type Battery Charger | |
| HA-B30CHG-CN | Cradle-type Battery Charger | See note 1. |
| DT-9721CHGE | Battery Charger | Single battery pack charger |
| DT-9721CHGE-CN | Battery Charger | See note 1. |
| DT-9723LIC | Battery Pack | |
| DT-9723LIC-CN | Battery Pack | See note 1. |
| AD-S42120B | AC Adaptor | DC12V/3.5A See note 3. |
| AD-S42120B-CN | AC Adaptor | DC12V/3.5A See notes 1 and 3. |
| AD-S10095AE | AC Adaptor with European power cable | DC9.5V/1A See note 2. |
| AD-S10095AU | AC Adaptor with US power cable | DC9.5V/1A See Note 2. |
| AC-CORD-EU | Power Cable | For AD-S42120B and Europe |
| AC-CORD-US | Power Cable | For AD-S42120B and US/Canada |
| AC-CORD-TW | Power Cable | For AD-S42120B and Taiwan |
| AC-CORD-KR | Power Cable | For AD-S42120B and Korea |
| AC-CORD-AU | Power Cable | For AD-S42120B and Australia |
| DT-827CAC | Car Power Cable | |
| DT-827CAC-CN | Car Power Cable | See note 1. |
| DT-887AXA | RS-232C Cross Cable | Cable length; 1.5 m, 9-pin male |
| DT-887AXA-CN | RS-232C Cross Cable | Cable length; 1.5 m, 9-pin male See note 1. |
| DT-888RSC | RS-422 Modular Cable | Cable length; 1.0 m |
| DT-380USB | USB Cable | Cable length; 2.0 m |
| HA-B80AX | RS-232C Cross Cable | For ActiveSync. |
| HA-B80AX-CN | RS-232C Cross Cable | For ActiveSync See note 1. |
| HA-B93PH | Formed Sheet Paper Holder | |
| HA-B93PH-CN | Formed Sheet Paper Holder | See note 1. |
| HA-B92PCV | Splash Protect Cover | |
| HA-B92PCV-CN | Splash Protect Cover | See note 1. |
| HA-B90DCV | Screen Protect Cover | |

Notes:

1. "-CN" in the "Model no." box denotes that the model is dedicated for the final destination of China. A note about the compliance with the Chinese "RoHS" requirement promulgated by the Ministerial Decree No. 39 is accompanied in the carton box, the RoHS compliant seal is affixed on the body and the seal of the packing material recycle marking is affixed on the carton box.
2. The AC Adaptor accompanies a power cable.
3. The AC Adaptor does not accompany a power cable.

The accessories in the table below are accompanied in each individual carton box of IT-3100 series. Accessories accompanied in each dedicated option are not listed in the table below.

Table 1.3 Accessory

| Accessory | Q'ty | Remark |
|---|---|---|
| Stylus | 1 | |
| Neck strap and stylus holder | 1 | |
| Hand strap | 1 | |
| Battery pack | 1 | DT-9723LIC |
| Roll paper | 1 | |
| PC card fixers | 3 | |
| 58 mm Paper Width Adjuster | 1 | |
| PC Card remover | 2 | |
| User's Guide | 1 | In English, Chinese and Turkish |

## 1.3 Options and Interfaces

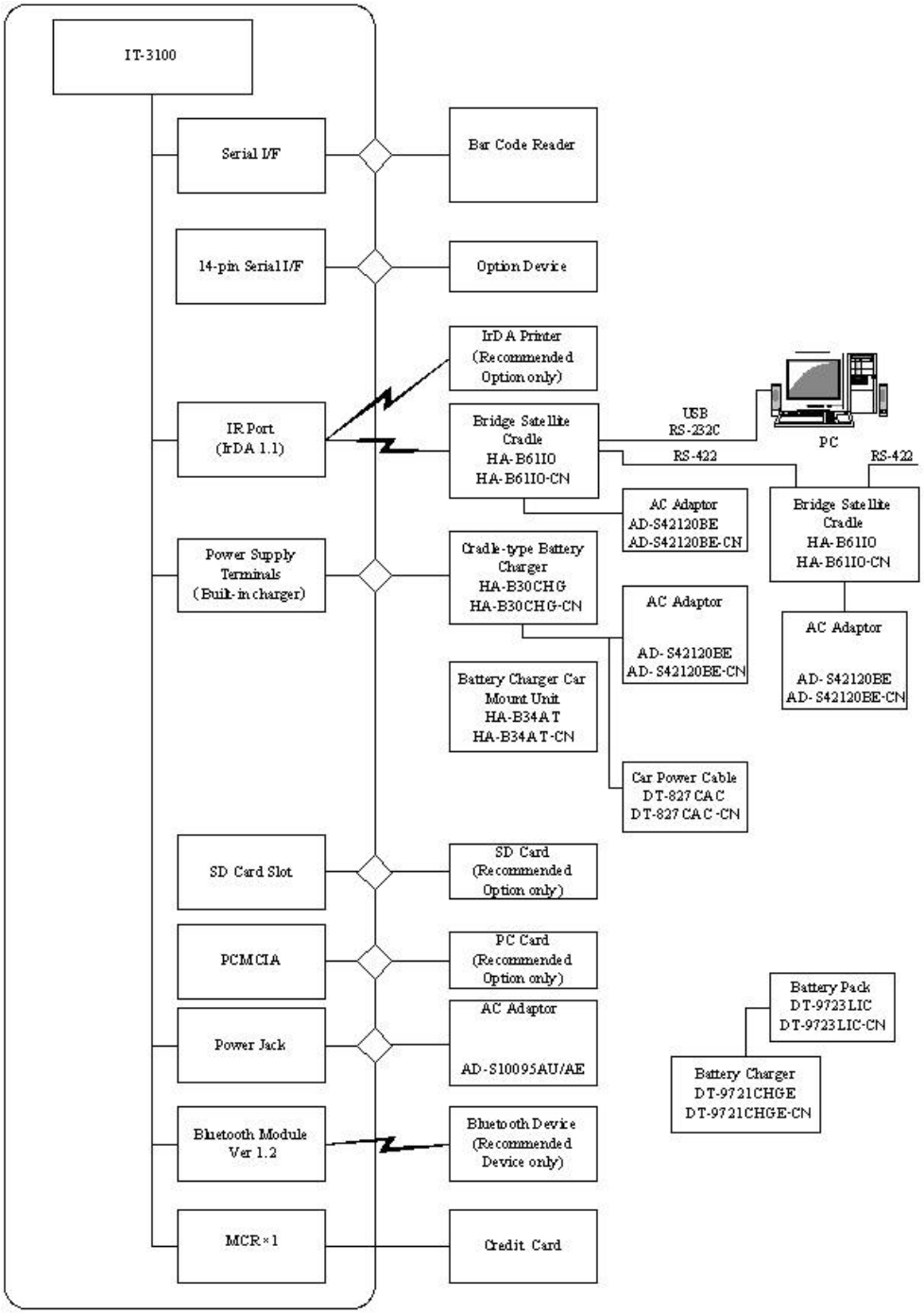



Figure 1.1

## 1.4 External Views

### 1.4.1 IT-3100

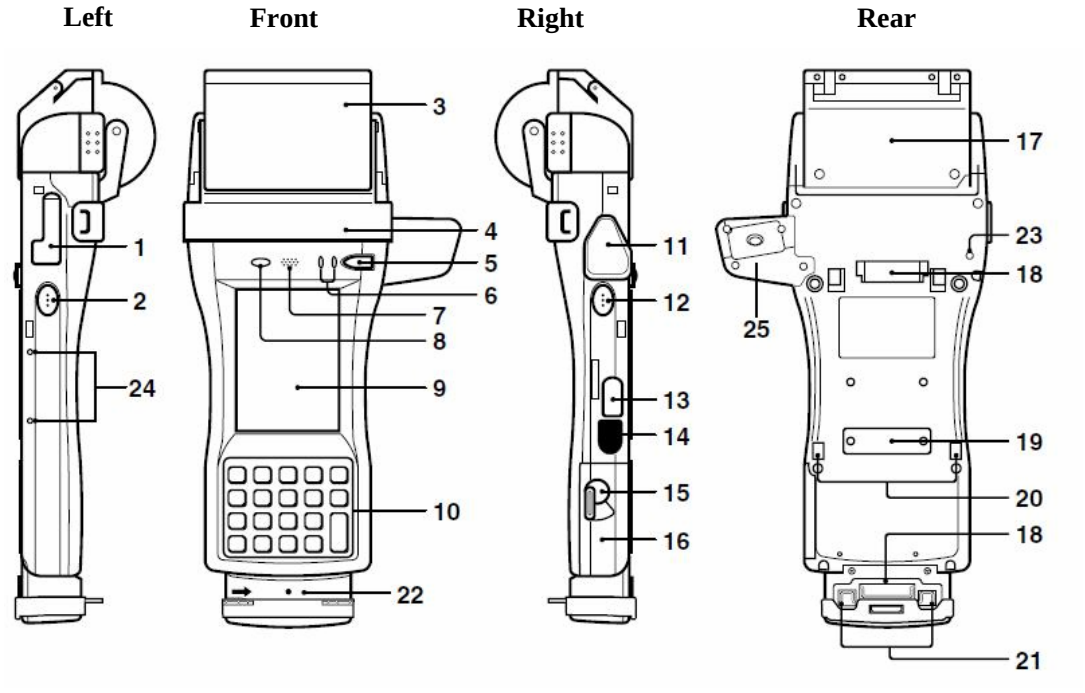



Figure 1.2

Notes:

- The C-MOS imager (item no. 25) comes with IT-3100M55E, IT-310055U, IT-3100M56E and IT-3100M56U. For non-CMOS imager models, the 8-pin serial interface is available instead.
- The magnetic card reader (item no. 22) comes with IT-3100M54E, IT-3100M55E and IT-3100M55U.

See the following table for names of each part and description.

Table 1.4 Descriptions of the parts

| No. | Name | Description |
|---|---|---|
| 1 | SD Memory Card Slot | Slot for inserting SD memory card. |
| 2 | L Program Key | This key can be assigned to any function available. In the imager model, use it to scan bar codes, etc. |
| 3 | Roll Paper Holder | Roll paper is placed in this holder. Use the optional Paper Holder when using a formed sheet paper. |
| 4 | Splash Protect Cover and Paper Cutter | Printed roll paper is torn off here. The paper cutter is provided with a splash protect cover. Open the cover when printing. The paper cutter is revealed when the cover is opened. |
| 5 | Power Key | Press this key to turn on or off the power. |
| 6 | Indicator 1 (Left side) | This indicator lights green when charging the battery pack is complete or red during charging. |
| | Indicator 2 (Right side) | This indicator flashes or lights according to the settings of the application software installed in the terminal. |
| 7 | Speaker | Generates audio sound and buzzer tone. |
| 8 | Brightness Sensor | This sensor detects the brightness in the surroundings. The backlight and key backlight can be controlled automatically according to settings. Be careful not to inadvertently block the sensor. |
| 9 | LCD Panel/Touch Screen | Displays text, operations, indicators and so forth. In addition, operations can be performed and data can be input using the stylus provided. |
| 10 | Stroke Keys | There are a total of 19 keys including function keys and numeric keys. Each numeral or symbol on the key tops is backlit. |
| 11 | 8-pin Serial Interface Connector | For connecting a bar code reader and so forth. |
| 12 | R Program Key | This key can be assigned to any function available. |
| 13 | Power Jack | The dedicated AC Adaptor is connected to this jack when charging the lithium-ion battery pack. |
| 14 | IR Port | This is used for IR communication with another terminal or the Bridge Satellite Cradle. |
| 15 | Battery Pack Cover Lock Switch | Turn this switch when opening and closing the battery pack cover. |
| 16 | Battery Pack Cover | This is the cover for the battery compartment. |
| 17 | PC Card Slot | For connecting a PC card available from a third party. Remove the cover to install a PC card. |
| 18 | Hand Strap Hook | Hook the hand strap here. |
| 19 | 14-pin Serial Interface Connector | Provided for future use. |
| 20 | Power Terminals | Terminals for supplying power from the Bridge Satellite Cradle or Cradle-type Battery Charger. |
| 21 | Neck Strap Hooks | Hook the neck strap here. |
| 22 | Magnetic Card Reader | Magnetic cards are read by passing through this magnetic card reader. |
| 23 | Reset Switch | Press to reset the terminal. |
| 24 | Screen Protect Cover Mounting | Remove the screws when attaching the Screen Protect Cover. |
| 25 | CMOS Imager | Reads 1D and 2D symbologies. |

## 1.4.2 HA-B30CHG

The following external views show the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG -CN).

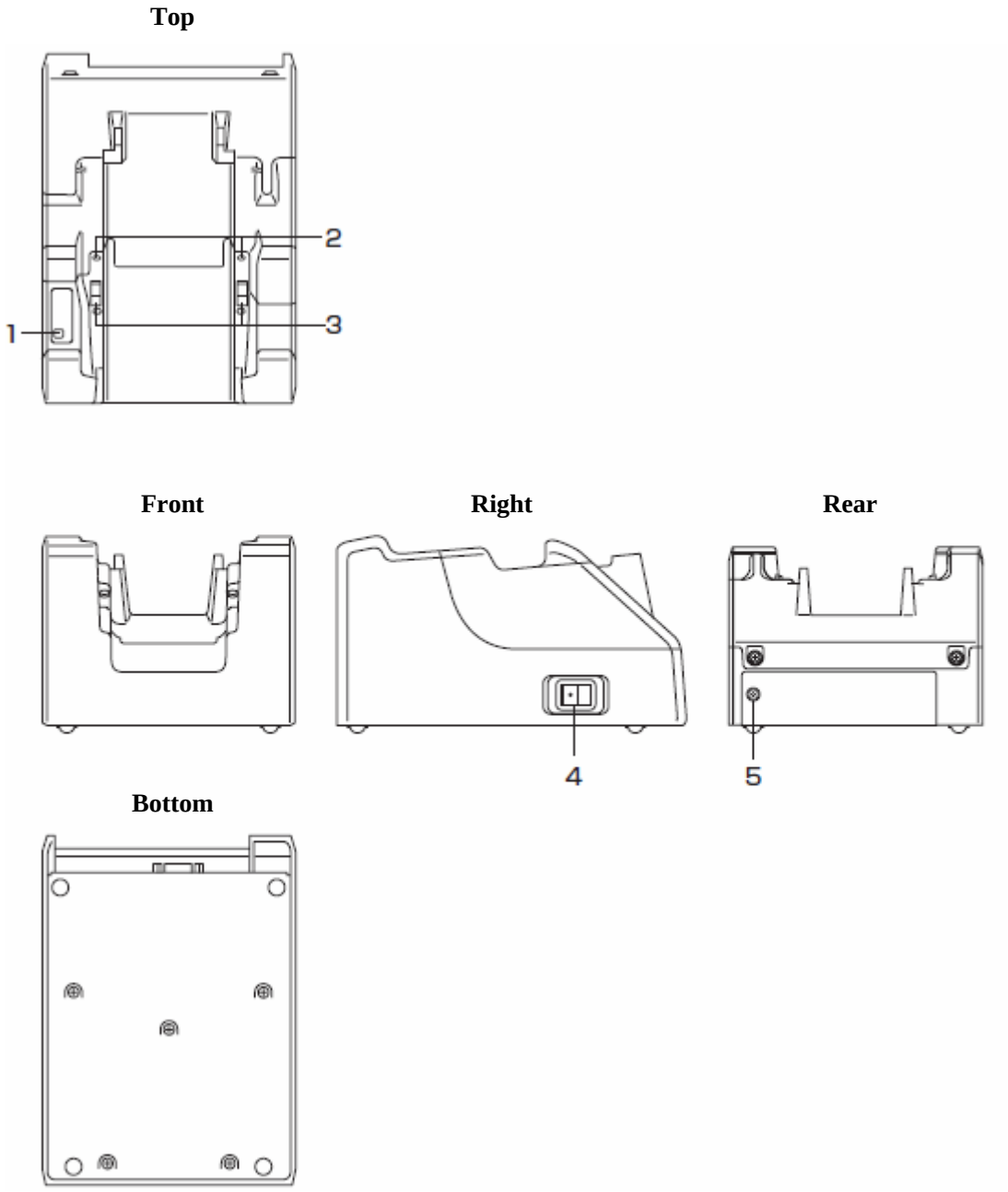



Figure 1.3

Table 1.5 Names of parts and the descriptions

| No. | Part Name | Description |
|---|---|---|
| 1 | Power Status Indicator | This LED indicates the power status. |
| 2 | Detection Switches | These switches are to detect the terminal being mounted in the charger. |
| 3 | Power Supply Terminals | These terminals are to provide the power to the terminal in the charger. |
| 4 | Power Switch | Turns on and off the power. |
| 5 | Power Jack | Power jack to connect the dedicated AC Adaptor for supplying the power. |

## 1.4.3 HA-B61IO

The following external views show the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN).

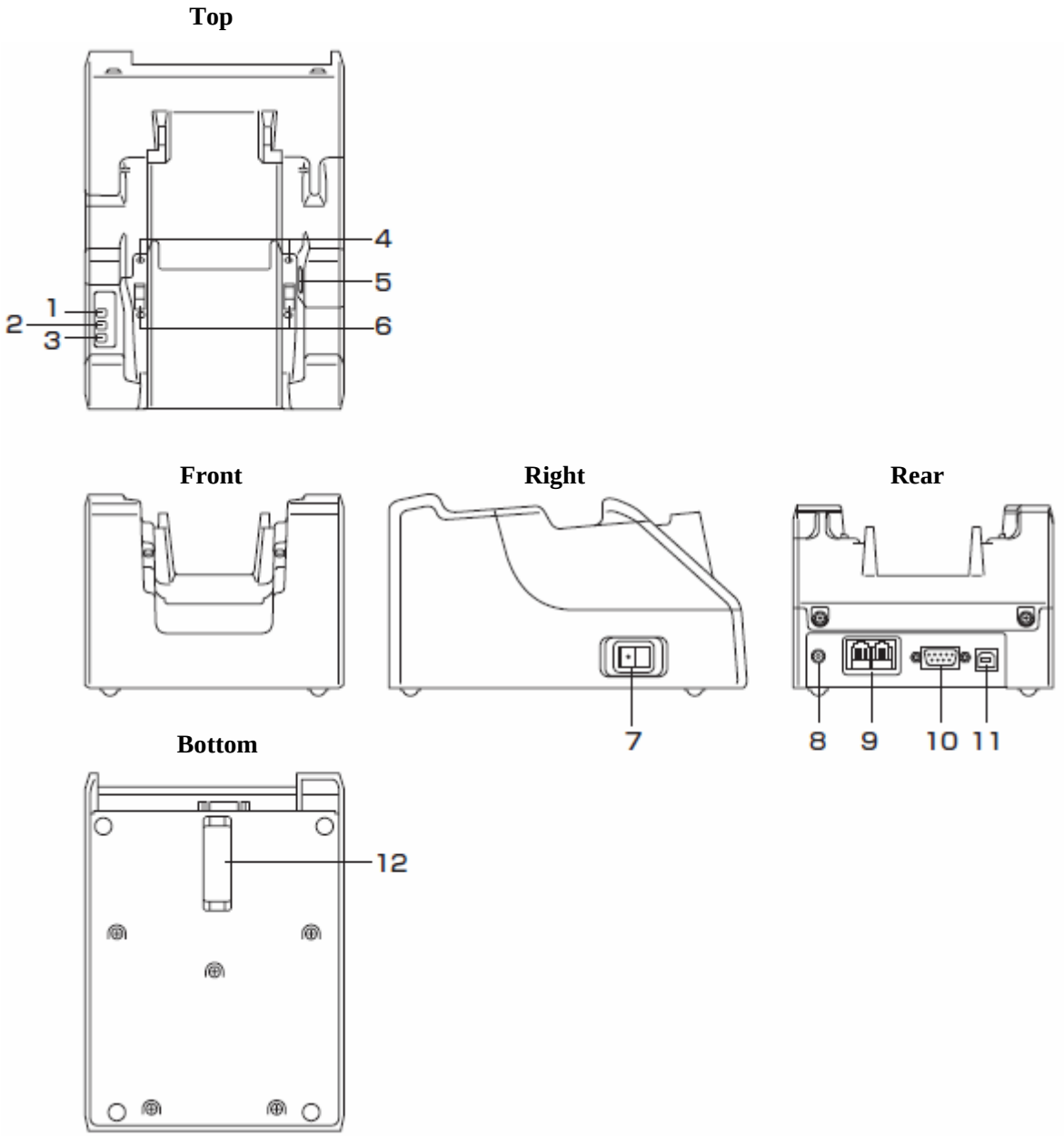



Figure 1.4

See Table 1.6 for names of each part and its description.

Table 1.6 Names of parts and the descriptions

| No. | Part Name | Description |
|---|---|---|
| 1 | System Status Indicator Lamp | This lamp indicates whether the system is operating normally. It indicates the system status and whether or not communication with the system can be performed regardless of whether or not the terminal is mounted.<br>Off : System is not operating.<br>Green : System is operating. |
| 2 | Communication Indicator Lamp | This lamp shows when the terminal is performing communication.<br>Off : No communication being performed.<br>Green flashing : Communication in progress.<br>Red : Problem with connection between Bridge Satellite and the terminal. |
| 3 | Power Indicator Lamp | This lamp indicates the power status and mounting status of the terminal.<br>Off : Power off.<br>Green : Power on and communication is in progress.<br>Red : Power on, but the terminal is not mounted. |
| 4 | Terminal Detect Switches | These switches detect a terminal when it is correctly mounted in the Bridge Satellite Cradle. |
| 5 | IR Port | This port exchanges data with the terminal via IR port. |
| 6 | Power Contacts | Power is supplied to the terminal via these contacts. |
| 7 | Power Key | Turns on and off the power. |
| 8 | AC Adaptor Jack | Connect the dedicated AC Adaptor here to supply power. |
| 9 | RS-422 Port | This port is used when connecting with another Bridge Satellite Cradle. |
| 10 | RS-232C Port | This port is for connecting an RS-232C cable for connection to PC for transfer of data and file. Use of the RS-232C port requires installation of the special driver on PC. |
| 11 | USB Port | This port is for connecting a USB cable for connection to PC for transfer of data and file. Use of the USB port requires installation of the special driver on PC. |
| 12 | DIP Switches | Use these switches to configure the Bridge Satellite Cradle. |

## 1.4.4 DT-9721CHGE

The following external view shows the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

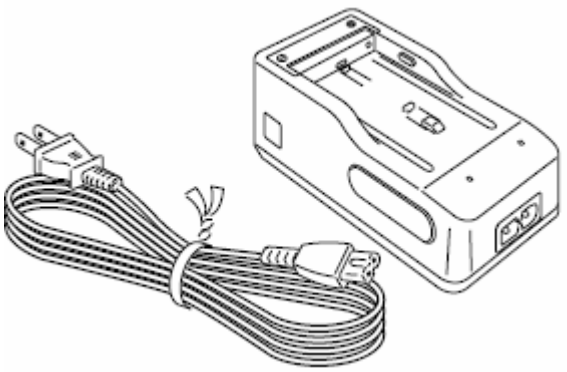


Figure 1.5

Note:
The above figure shows the DT-9721CHGE (DT-9721CHGE-CN) with a power cord available in Japan. The power cord accompanied with the charger for overseas destinations is not in the same form shown.

## 1.4.5 DT-9723LIC

The following external views show the Battery Pack (DT-9723LIC, DT-9723LIC-CN).

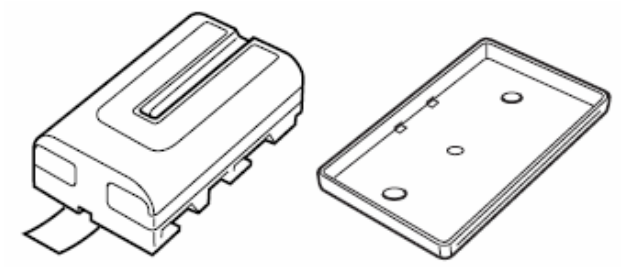


Figure 1.6

## 1.4.6 AD-S10095A

The following external view shows the AC Adaptor (AD-S10095AE, AD-S10095AU).

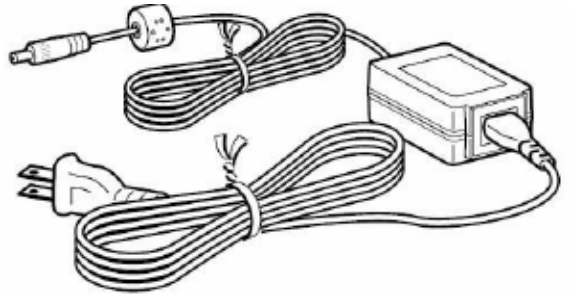


Figure 1.7

## 1.4.7 AD-S42120B

The following external view shows the AC Adaptor (AD-S42120BE, AD-S42120BE-CN).

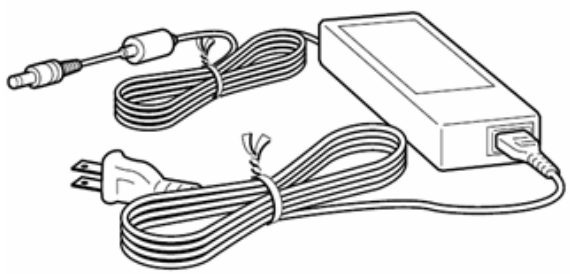


Figure 1.8

Note:
The AD-S42120BE and AD-S42120BE-CN do not accompany a power cable.

## 1.4.8 HA-B34AT

The following external view shows the Battery Charger Car Mount Unit (HA-B34AT, HA-B34AT -CN).

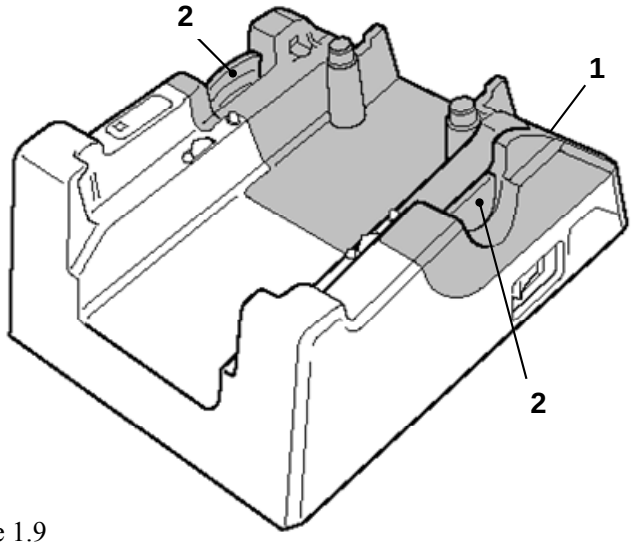



Figure 1.9

Note:
The figure above shows a view of HA-B34AT Battery Charger Car Mount Unit (gray part) and HA-B30CHG Cradle-type Battery Charger being assembled together.

Table 1.7 Names of parts and the descriptions

| No. | Part Name | Description |
|---|---|---|
| 1 | Jack for Car Power Cable | Connect the dedicated Car Power Cable from the cigarette lighter in a vehicle. |
| 2 | Removal Buttons R and L | When remove the terminal, press the removal buttons on the left and right sides of the Car Mounted Battery Charger. |

## 1.4.9 HA-B90DCV

The following external view shows the Screen Protect Cover (HA-B90DCV).

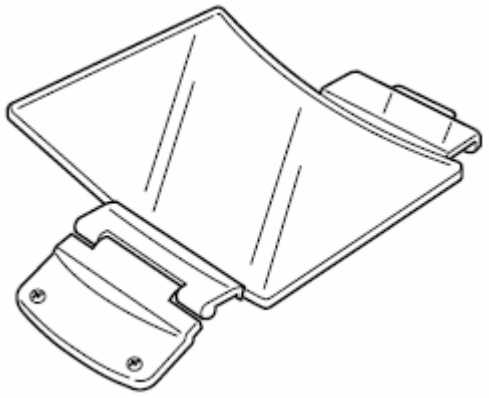


Figure 1.10

## 1.4.10 HA-B93PH

The following external view shows the Formed Sheet Paper Holder (HA-B93PH, HA-B93PH-CN).

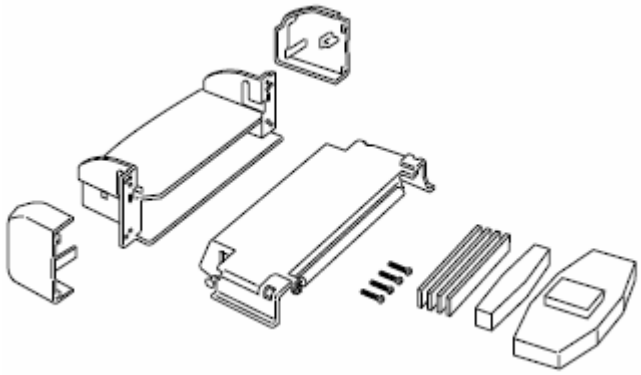


Figure 1.11

## 1.4.11 DT-888RSC

The following external view shows the RS-422 Modular Cable.

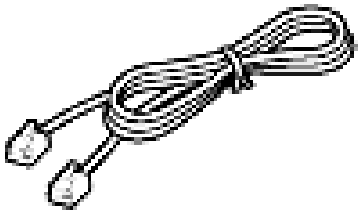


Figure 1.12

## 1.4.12 DT-887AXA

The following external view shows the RS-232C Cross Cable (DT-887AXA, DT-887AXA-CN).

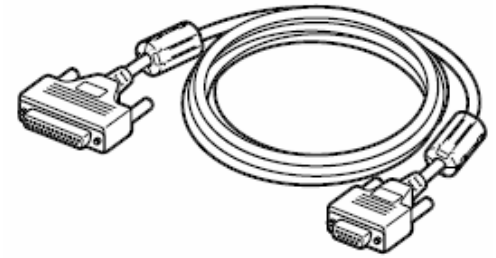


Figure 1.13

## 1.4.13 DT-380USB

The following external view shows the USB Cable.

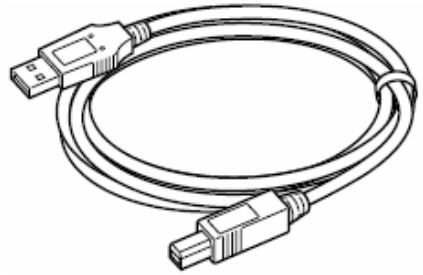


Figure 1.14

## 1.4.14 HA-B80AX

The following external view shows the RS-232C Cross Cable (HA-B80AX, HA-B80AX-CN).

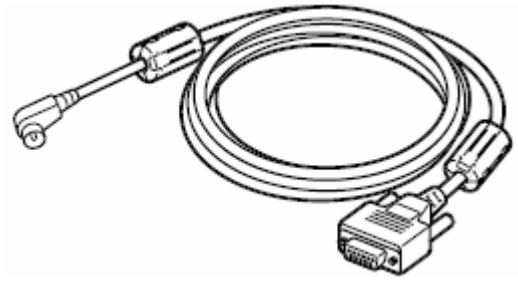


Figure 1.15

# 2. Hardware Specifications

## 2.1 IT-3100

Tables 2.1 to 2.4 explain the hardware specifications of the IT-3100 series (all models).

Table 2.1

| Parameter | | Specification | Remark |
|---|---|---|---|
| CPU/Memory | | | |
| | CPU | Marvell® PXA255 runs at 400MHz (maximum) | |
| | Operating system | Microsoft®Windows® CE Ver. 5.0 | |
| | RAM | 128 MB | |
| | FROM (system) | 64 MB | |
| | FROM (user) | 32 MB (user area: approx. 30 MB) | |
| Display | | | |
| | Device | 3.5-inch advanced 2-way TFT color LCD | |
| | Resolution | 240 (Horizontal) x 320 (Vertical) dots | |
| | Backlight | LED | Automatic control via the brightness sensor |
| | Dot pitch | 0.22 mm (H) x 0.22 mm (V) | |
| | Font | Scalable fonts | |
| Indicator | | | |
| | LED | 2 pcs x 2-color LED in red and green | |
| Input | | | |
| | Keyboard | Ten keys (0 to 9), ENT, CLR, Fn, BS | |
| | Control key | Power key, Reset switch | |
| | Programmable key | 2 ( on the left and right sides) | |
| | Touch panel | Plastic panel | |
| Key backlight | | Available | Automatic control with the brightness sensor (Programmable) |
| Brightness sensor | | Available | Used to control both display backlight and key backlight. |
| Printer | | | |
| | Method | Thermal line dot | |
| | Paper width | 80 mm or 58 mm | The width of paper must be preset with software prior to use of the printer. In order to use 58mm paper, “58mm Width Adjuster” must be installed first. |
| | Printing width | 72 mm (for an 80 mm paper)<br>48 mm (for a 58 mm paper) | |
| | Speed | 28 lines per second (Max.) | See note 1. |

Continue.

| | | | |
|---|---|---|---|
| | Paper | Roll paper, formed papers (1-ply, 2-ply), label paper | Use only CASIO recommended papers. |
| | Font size | "x1", "x1.5", "x2", "x3", and "x4" sizes are supported. | |
| | Font types | ANK/Symbologies (UPC-E, NW-7, Code39, ITF, Code128, OCR-B, user-defined characters x 128) | |
| | Print function | In white, black and reverse modes. Mixture of different font sizes. | |
| IrDA | | | |
| | Standard | IrDA Version 1.1 | The module is installed on the right side. |
| | Method | Half-duplex | |
| | Synchronization | Start and stop bits, frame synchronization | |
| | Baud rate | 9,600, 115,200, 4 Mbps | |
| | Communication range | 0 (contact) to 1 m (0.25 m for 4 Mbps) | |
| Bluetooth | | | |
| | Standard | Bluetooth® specification Ver. 1.2 | |
| | Communication range | Approx. 3 m | See note 2. |
| | Frequency range | 2402 to 2480 MHz | |
| | Output power | Max. 3 dBm (PowerClass2) | |
| | Transmit power | 1.0 mW | |
| | Emission designation | F1D | ITU code |
| | Modulation type | GFSK | |
| | Number of channels | 79 | |
| | Channel spacing | 1 MHz | |
| | Bandwidth | 1 MHz | |
| | Antenna type | IFA | |
| | Antenna gain | 0.35 dBi (maximum) | |
| 8-pin serial interface | | | |
| | Interface | RS-232C level interface | See note 3. |
| | Synchronization | Start and stop bits synchronization | |
| | Baud rate | 300, 600, 1200, 2400, 4800, 9600, 19.2K, 38.4K, 57.6K, 115.2K | |
| | Output power to external | 5.0 V±10%, Max. 300 mA | |
| | Connector | TSC7926-18-30 | Manufactured by Hosiden Corporation |
| | Pin layout | See Table 2.2. | |
| | Pin configuration table | See Table 2.2. | |

Continue to page 24.

Notes:

1. The printing speed has been measured under the following conditions;
   - Printing Kanji with 16-dot mode character and space is not allowed between lines.
   - One pry roll paper is used.
   - The battery pack is fully charged before printing.
2. The communication range can be varied depending on the surrounding environment.
3. IT-3100M55E, IT-3100M55E-CN, IT-3100M55U, IT-3100M56E, IT-3100M56E-CN and IT-3100M56U do not integrate the serial interface.
4. A partner device connected to this interface must output data in the RS-232C signal level when communicating with the terminal.

Table 2.2 8-pin serial interface pin configuration and pin layout

| Pin | Signal | Direction | Remark |
|---|---|---|---|
| 1 | SD | OUT | |
| 2 | RD | IN | |
| 3 | RS | OUT | |
| 4 | CS | IN | |
| 5 | Vcc | OUT | 5V±10%, Max300mA |
| 6 | SG | — | GND for signal and ground |
| 7 | ER | OUT | |
| 8 | DR | IN | |

Pin Layout

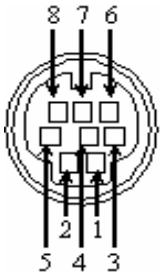



Figure 2.1

Table 2.3 14-pin serial interface pin configuration and pin layout

| Pin | Signal | Direction | Remark |
|---|---|---|---|
| 1 | SG | — | GND for signal and ground. |
| 2 | SG | IN | GND for signal and ground. |
| 3 | NC | — | |
| 4 | CI | IN | |
| 5 | NC | — | |
| 6 | DR | IN | |
| 7 | SD | OUT | |
| 8 | CD | IN | |
| 9 | RD | IN | |
| 10 | EXTSW | OUT | Output "L" when VH is ON.（Open drain |
| 11 | RS | IN | |
| 12 | VH | OUT | 5V±10%, Max. 300mA |
| 13 | ER | OUT | |
| 14 | VH | OUT | 5V±10%, Max. 300mA |

Pin Layout

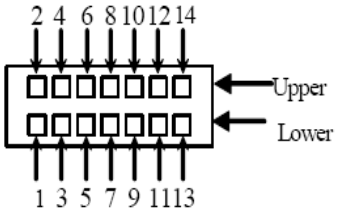



Figure 2.2

| | | | |
|---|---|---|---|
| 14-pin serial interface | | | |
| | Interface | RS-232C level interface | See note 4. |
| | Synchronization | Start and stop bits synchronization | |
| | Baud rate | 300, 600, 1200, 2400, 4800, 9600, 19.2K, 38.4K, 57.6K, 115.2K | |
| | Output power to external | 5.0 V±10%, Max. 300 mA | |
| | Connector | A3A-14DA-2SV | Manufactured by Hirose Electric Co., Ltd |
| | Pin layout | See Table 2.3. | |
| | Pin configuration table | See Table 2.3. | |
| SD slot | | | |
| | SD memory card | 1 slot | |
| PC card slot | | | |
| | Type | PC card Type I/II (3.3V/5.0V) | |
| | Power | Max. 500 mA at 3.3V | |
| | | Max. 1,000 mA at 5.0V | |
| Magnetic card reader | | | |
| | Standard | ISO Tracks 1, 2, 3 (ISO7811) | |
| | No. of tracks for concurrent read-in | 3 | |
| | Sides of data reading | Both | |
| | Orientation | One direction (left to right with the front side being faced to the operator) | |
| | Card running speed | 10 to 150 cm per second | |
| Speaker | | | |
| | Alarm sound | 70 dB or greater | |
| | Voice sound | 60 dB or greater | |
| | Key click sound | 50 dB or greater | |
| Power | | | |
| Operating battery | | Lithium-ion battery x 1 | 7.4 V 2,200 mAH. |
| Memory backup battery | | Lithium rechargeable battery x 1 | Built-on board/irreplaceable. |
| Battery life | | Approx. 15 hours | - JEITA operation mode A.<br>- See note 5. |
| | | Approx. 12.6 hours | - JEITA operation mode D.<br>- See note 5. |

Continue.

| | | | | |
|---|---|---|---|---|
| Memory backup | | RAM | 10 minutes while replacing the operating battery. | See note 6. |
| | | | 1 day from when operating battery low warning appears. | |
| | | RTC | 1 day from when operating battery low warning appears. | |
| Charging the operating battery | | | | |
| | Ways to charge the battery pack | Use AC Adaptor (AD-S10095A) while the battery pack is being installed in the terminal. | | |
| | | Use the Cradle-type battery charger while the battery pack is being installed in the terminal. | | |
| | | Use the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN) to charge the battery pack alone. | | |
| | Charge method | Constant current and constant voltage | | |
| | Charge voltage | 8.4 V±1% | | |
| | Charge current | Approx. 400 mA | | |
| | Charge time | Approx. 8 hours (for DT-9723LIC, DT-9723LIC-CN) | | See note 7. |
| | | Approx. 72 hours (Memory backup) | | See note 8. |
| | Charge indication | During charging : LED ON in red | | |
| | | After charging complete : LED ON in green | | |
| CMOS Imager | | | | |
| | Method | 300,000 pixels, monochrome | | |
| | Emitting window | Redirected downward at 45 degree | | |
| | Resolution | 1D symbologies | : 0.15 mm | |
| | | Stacked 2D symbologies | : 0.169 mm | |
| | | Matrix 2D symbologies | : 0.339 mm | |
| | PCS | 1D symbologies | : 0.45 or greater | |
| | | Stacked 2D symbologies | : 0.45 or greater | |
| | | Matrix 2D symbologies | : 0.45 or greater | |
| | Depth | 1D symbologies | : 40 to 410 mm | |
| | | Stacked 2D symbologies | : 50 to 250 mm | |
| | | Matrix 2D symbologies | : 60 to 150 mm | |
| | Readable width | See Chapter 2.1.2 “Reference for C-MOS Imager Performance”. | | |
| | Readable symbology | Refer to IT-3100 Series Software Manual. | | |

Notes:

4. When the battery pack is a brand-new charged fully, and the surrounding temperature is in ordinary level.
5. When the backup battery is a brand-new, and the surrounding temperature is in ordinary level.
6. When the terminal's power is turned off. The memory backup battery is a brand-new, and the surrounding temperature is in ordinary level.
7. When the terminal's power is turned off. The battery pack is a brand-new, and the surrounding temperature is in ordinary level.
8. A period of time until when the memory backup battery becomes fully charged. The operating battery (DT-9723LIC) is being installed in the terminal, and the surrounding temperature is in ordinary level.

### Weight and Dimensions

Table 2.4

| Model no. | Dimensions | Weight |
|---|---|---|
| IT-3100M53E, M53E-CN | Approx. 80 (w) x 199.5 (d) x 28 (h) mm (See note 1.) | Approx. 530g (See note 3.) |
| | Approx. 108 (w) x 265 (d) x 68 (h) mm (See note 2.) | Approx. 635g (See note 4.) |
| IT-3100M54E, M54E-CN | Approx. 80 (w) x 229.5 (d) x 28 (h) mm (See note 1.) | Approx. 580g (See note 3.) |
| | Approx. 108 (w) x 295 (d) x 68 (h) mm (See note 2.) | Approx. 680g (See note 4.) |
| IT-3100M55E, M55E-CN, M55U | Approx. 80 (w) x 229.5 (d) x 28 (h) mm (See note 1.) | Approx.600g (See note 3.) |
| | Approx. 145 (w) x 295 (d) x 70 (h) mm (See note 2.) | Approx. 700g (See note 4.) |
| IT-3100M56E, M56E-CN, M56U | Approx. 80 (w) x 199.5 (d) x 28 (h) mm (See note 1.) | Approx. 550g (See note 3.) |
| | Approx. 145 (w) x 265 (d) x 70 (h) mm (See note 2.) | Approx. 655g (See note 4.) |

Notes:

1. The paper holder and other extruding parts on the terminal are excluded.
2. The paper holder and other extruding parts on the terminal are included.
3. The paper holder and hand strap are excluded. The lithium-ion battery pack is installed in the terminal.
4. The paper holder and lithium-ion battery pack installed are included. The hand strap is excluded.

## 2.1.1 14-pin Serial Interface Connector

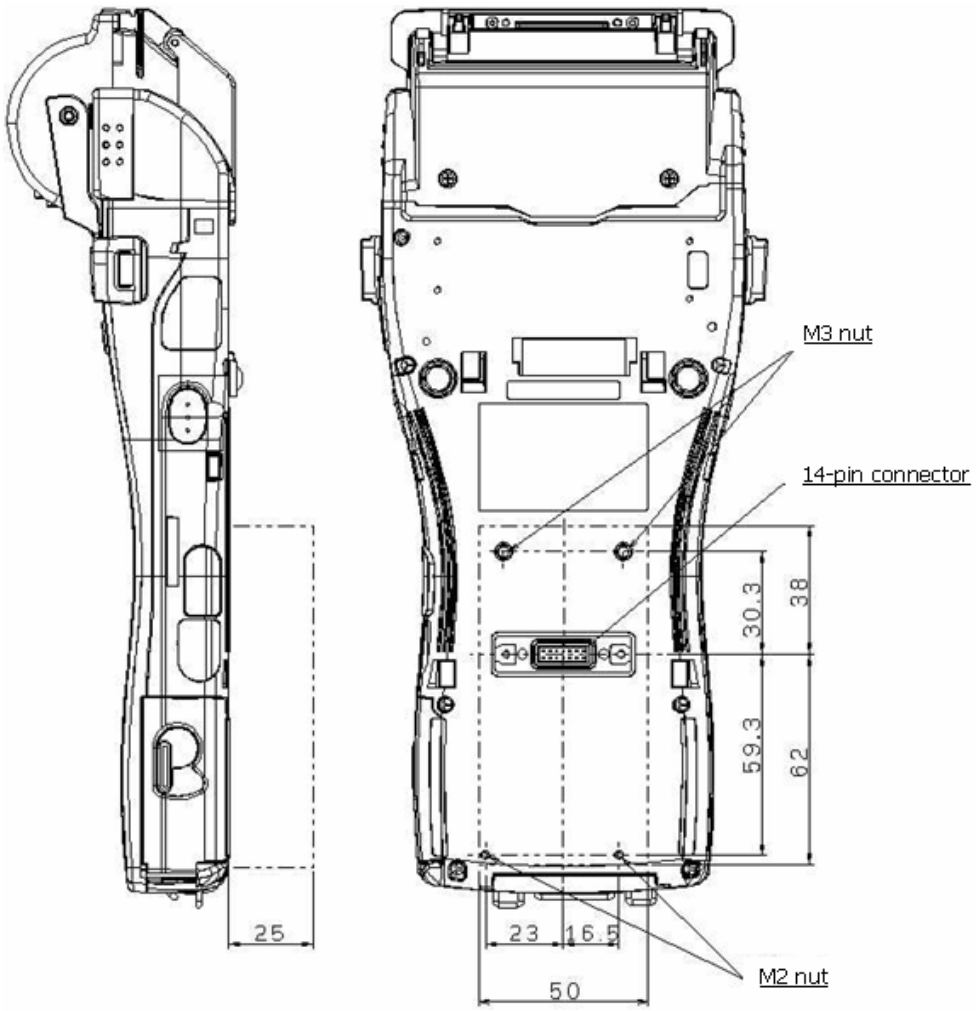



Figure 2.3

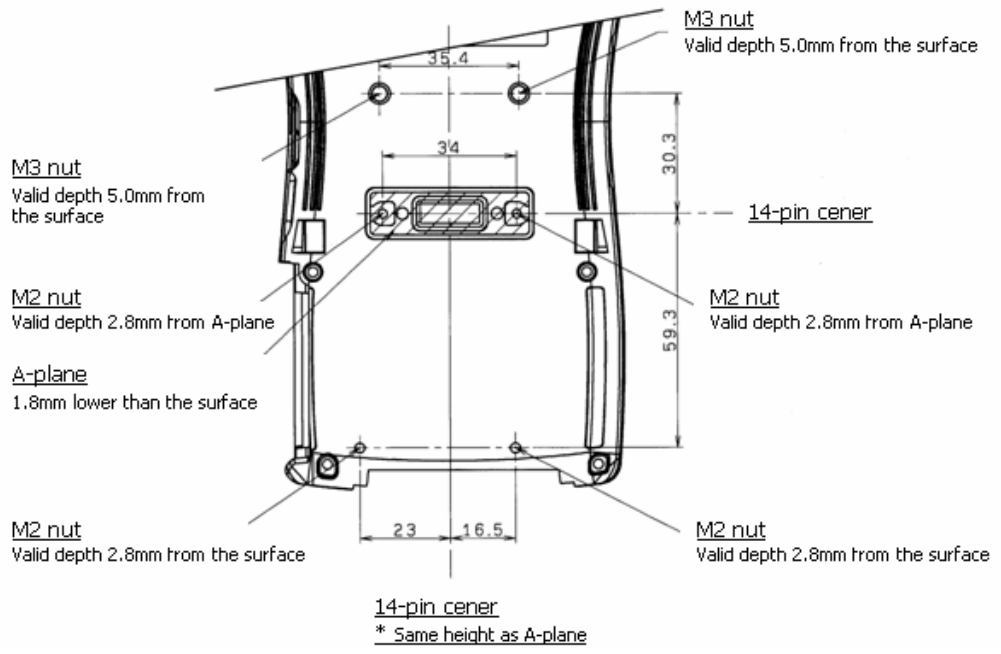



Figure 2.4

## 2.1.2 Reference for C-MOS Imager Performance

The CMOS imager performance reference is provided in this chapter as a guide to be utilized by the user. The user can refer to these reference values in the table for his or her specific business application. All the reference values have been came out from the assessment tests carried out under the basic performance conditions below. However, it does not necessarily imply that the values are guaranteed and optimum to any kind of business applications. They are intended for use by the user as a reference only.

Table 2.5

| Symbology | | Resolution | Range (mm) | No. of read digits | | | Remark |
|---|---|---|---|---|---|---|---|
| | | | | A: Maximum (close) | B: Recommended | C: Maximum | |
| 1D | Code39 | 6 mil (0.15 mm) | 70 to 105 | 12 | 12 | 21 | |
| | | 8 mil (0.20 mm) | 60 to 135 | 5 | 12 | 22 | |
| | | 10 mil (0.254 mm) | 50 to 200 | 5 | 10 | 20 | |
| | | 13 mil (0.33 mm) | 60 to 200 | 5 | 10 | 19 | |
| | | 15 mil (0.38 mm) | 40 to 210 | 2 | 8 | 17 | |
| | | 20 mil (0.5 mm) | 70 to 260 | 2 | 8 | 16 | |
| | | 40 mil (1.0 mm) | 90 to 410 | 2 | 5 | 12 | |
| | UPC | 13 mil (0.33 mm) | 60 to 200 | 11 | 11 | 11 | |
| 2D (Stacked) | PDF417 | 6.6 mil (0.168 mm) | 60 to 115 | 97 | 100 | 2000 | ECL4 |
| | | 8 mil (0.20 mm) | 60 to 135 | 95 | 100 | 2000 | ECL4 |
| | | 10 mil (0.254 mm) | 50 to 165 | 100 | 100 | 2000 | ECL4 |
| | | 15 mil (0.38 mm) | 70 to 210 | 52 | 50 | 1800 | ECL4 |
| | | 20 mil (0.5 mm) | 80 to 250 | 50 | 50 | 1500 | ECL4 |
| 2D (Matrix) | DataMatrix | 13 mil (0.33 mm) | 60 to 105 | 100 | 100 | 1152 | ECC200 Max. 88 x 88 cel. |
| | | 15 mil (0.38 mm) | 60 to 125 | 97 | 100 | 1152 | |
| | | 20 mil (0.5 mm) | 80 to 155 | 95 | 100 | 1152 | |
| | QR | 13 mil (0.33 mm) | 60 to 105 | 100 | 100 | 1600 | Max. model 2 M version 20 |
| | | 15 mil (0.38 mm) | 60 to 130 | 97 | 100 | 1600 | |
| | | 20 mil (0.5 mm) | 60 to 145 | 95 | 100 | 1600 | |
| | Maxicode | 35 mil (0.889 mm) | 50 to 210 | 52 | 50 | 138 | ECC |

Continue.

| | | | | |
|---|---|---|---|---|
| Angle | | | | |
| Pitch | 1D (Code39 10 mil (0.25 mm)) | ±35° | At 110 mm from the LED emission port. | |
| | 2D Stacked (PDF417 10 mil (0.25 mm)) | ±35° | At 110 mm from the LED emission port. | |
| | 2D Matrix (Aztec 20 mil (0.5 mm)) | ±35° | At 110 mm from the LED emission port. | |
| Skew | 1D (Code39 10 mil (0.25mm)) | ±40° | At 110 mm from the LED emission port. | |
| | 2D Stacked (PDF417 10 mil (0.25 mm)) | ±40° | At 110 mm from the LED emission port. | |
| | 2D Matrix (Aztec 20 mil (0.5 mm)) | ±35° | At 110 mm from the LED emission port. | |
| Dead zone | Pitch and Skew | ±5°(Pitch and Skew) | At 110 mm from the LED emission port. | |
| Tilt | 1D (Code39 10 mil (0.25 mm)) | 360° | At 110 mm from the LED emission port. | |
| | 2D Stacked (PDF417 10 mil (0.25 mm)) | 360° | At 110 mm from the LED emission port. | |
| | 2D Matrix (Aztec 20 mil (0.5 mm)) | 360° | At 110 mm from the LED emission port. | |
| PCS | | | | |
| | 1D (Code39 10 mil (0.25 mm)) | 0.45 or greater | 5 | |
| | 2D Stacked (PDF417 10 mil (0.25 mm)) | 0.45 or greater | 100 | |
| | 2D Matrix (MaxiCode 35 mil (0.889 mm)) | 0.45 or greater | 52 | |
| Surrounding illumination | | | | |
| | 100 to 80,000 Lux. | | | |
| Visible angle | | | | |
| | V_Angle = 26°, H_Angle = 35° | | | |
| Operating temperature (Image sensor) | | | | |
| | High temperature 50 ℃ | | | |
| | Low temperature -10 ℃ | | | |

**Basic read conditions:**

| | |
|---|---|
| Test chart | : Dedicated test pattern (1D, 2D Stacked) |
| Resolution | : 1D; 0.25 mm, 2D; 0.5 mm |
| PCS | : 0.9 or greater |
| Depth | : 110 mm from the LED emission port |
| Pitch angle | : $\alpha = 0$ degree |
| Skew angle | : $\beta = 10$ degree |
| Tilt angle | : $\gamma = 0$ degree |
| Surrounding temperature | : 25 ℃ |
| Surrounding humidity | : 30 to 50 % |
| Surrounding illumination | : 450 to 550 Lux. |
| Background of the symbol | : White |
| Conditional Judgment | : Readable 7 times or more per 10 times of scanning |

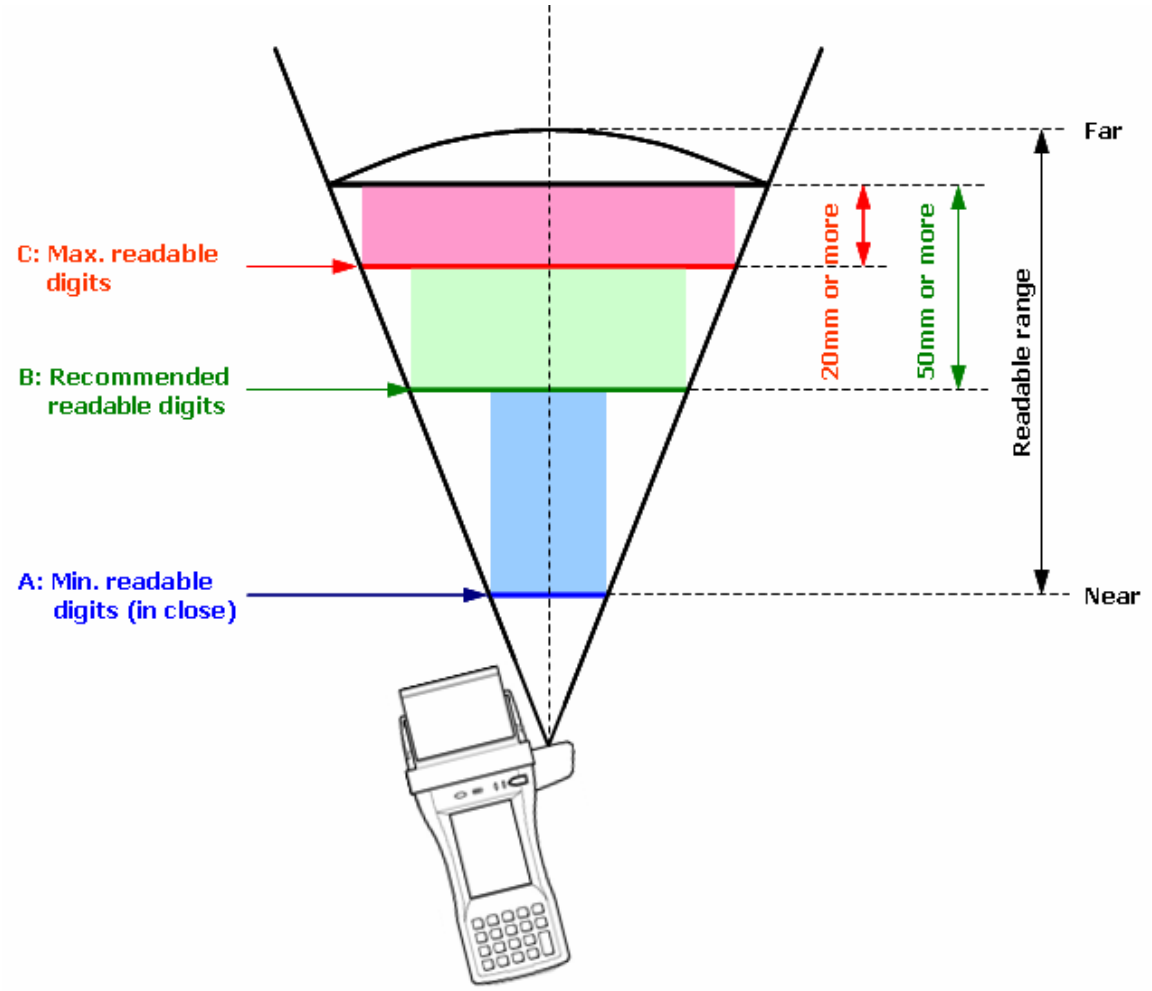



Figure 2.5

## 2.2 HA-B30CHG

The following table explains about the specifications of the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG-CN).

Table 2.6

| Parameter | | | Specification | Remark |
|---|---|---|---|---|
| Display | Status LED | No. of LEDs | 1 | |
| | | No. of display colors | 2 | In red and green |
| | | Display content | Power status (“POWER”) | |
| Input | Detection switch for the terminal | | Push switch | |
| Power | Input from AC adaptor | Input voltage | DC 12V±5% | |
| | | Consumption current | Approx. 2,100 mA | While supplying power or transmitting data. |
| | | Plug | EIAJ RC-5320A Class 4 | Center pin; plus |
| | | AC Adaptor | AD-S42120BE<br>AD-S42120BE-CN | |
| | Input from cigarette lighter | Cable | DT-827CAC<br>DT-827CAC-CN | See note 1. |
| | Charge/Power supply | Output voltage | DC10V±10% | |
| | | Output current | 1,800 mA (maximum) | |
| | | Charge method | Constant voltage | With the current limiter |
| | | Charge time | Approx. 8.0 hours | For DT-9723LIC, DT-9723LIC-CN |
| | | Power supply terminal | <br>Power supply GND | See note 2. |
| Weight | | Approx. 630 g | | |
| Dimensions | | Approx. 130 (W) x 206 (D) x 104 (H) mm | | |

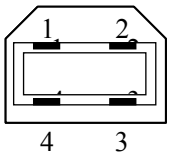
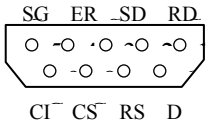
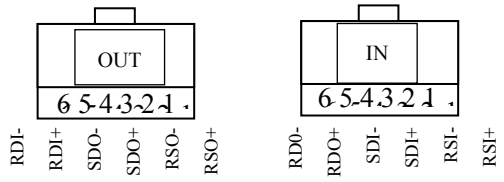
Notes:

1. The cable DT-827CAC (or DT-827CAC-CN) is used to supply the power to HA-B30CHG (or HA-B30CHG-CN) from the cigarette lighter installed in a vehicle.
2. “Power supply terminal” is located on your left side of the charger when you face to the front side with the power switch being located on your right side.

## 2.3 HA-B61IO

The following tables explain about the specifications of the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN).

Table 2.7

| Parameter | | | Specification | Remark |
|---|---|---|---|---|
| Interface | IrDA | Standard | IrDA Ver. 1.1 compatible | |
| | | Comm. method | Half duplex | |
| | | Synchronization | Start and stop bits method, Frame synchronization | |
| | | Comm. speed | 9600, 115.2 Kbps, 4 Mbps (maximum) | See note 1. |
| | USB | Standard | USB Ver. 1.1 compatible | |
| | | Comm. speed | 12 Mbps (maximum) | |
| | | Connector |  USB connector type B | 1. VBus<br>2. –Data (D-)<br>3. +Data (D+)<br>4. GND |
| | RS-232C | Comm. method | Full duplex | |
| | | Synchronization | Start and stop bits method | |
| | | Comm. speed | 115.2 Kbps | |
| | | Connector |  D-Sub 9-pin (female) | |
| | RS-422 | Comm. method | Full duplex | Comm. method |
| | | Synchronization | Start and stop bits method | Synchronization |
| | | Comm. speed | 115.2 Kbps | Comm. speed |
| | | Connector |  RJ-45 compatible (6 pins) | |
| Display | Status LED | No. of LEDs | 3 | |
| | | No. of display colors | 2 | Red and green |
| | | Display content | System operation status (“LINE”)<br>Comm. status (“DATA”)<br>Power status (“POWER”) | Refer to “Status Indication with LEDs”. |

Continue.

| | | | | |
|---|---|---|---|---|
| Input | DIP switch | | 8 switches | See page 35. |
| | Detection switch for the terminal | | Push switch | |
| Power | Input from AC adaptor | Input voltage | DC 12V±5% | |
| | | Consumption current | Approx. 2,200 mA | While supplying power or transmitting data. |
| | | Plug | EIAJ RC-5320A Class 4 | Center pin; plus |
| | | AC Adaptor | AD-S42120BE<br>AD-S42120BE-CN | |
| | Charge/ Power supply | Output voltage | DC 10V±5% | |
| | | Output current | 1,800 mA (maximum) | |
| | | Charge method | Constant voltage | With the current limiter |
| | | Charge time | Approx. 8.0 hours | For DT-9723LIC, DT-9723LIC-CN |
| | | Power supply terminal | <br>Power supply terminal GND | See note 2. |
| Weight | | Approx. 660 g | | |
| Dimensions | | Approx. 130 (W) x 206 (D) x 104 (H) mm | | |

Notes:

1. The maximum communication speed at 4 Mbps is possible only when the terminal is connected to Host PC via the USB interface.
2. “Power supply terminal” is located on your left side when you face to the front side of the Cradle with the power switch being located on your right side.

### Status Indication with LEDs

Various operational statuses on the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN) can be displayed using the LEDs. The following table describes LED modes and their meanings.

Table 2.8

| Parameter | | | Specification | Remark |
|---|---|---|---|---|
| LED | | | | |
| | Power status indicator ("POWER") | Power OFF | LED OFF | 2-color LED |
| | | IT-3100 is not mounted | LED ON in red | |
| | | IT-3100 is mounted | LED ON in green | |
| | Comm. status indicator ("DATA") | Break of communication | LED OFF | 2-color LED |
| | | Connection between cradle and PC is not valid. | LED ON in red | |
| | | Communication is in progress | LED flash in green | |
| Line status indicator ("LINE") | | No comm. with IT-3100 or abnormality of the system | LED OFF | |
| | | Communication is in progress with IT-3100. | LED ON in green | |

## 2.3.1 DIP Switch Setting for HA-B61IO

The DIP switch is located on the bottom side of the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN). Change the ON/OFF settings according to your required system configuration. The new settings do not go into effect until the power switch is turned off and then back on again.

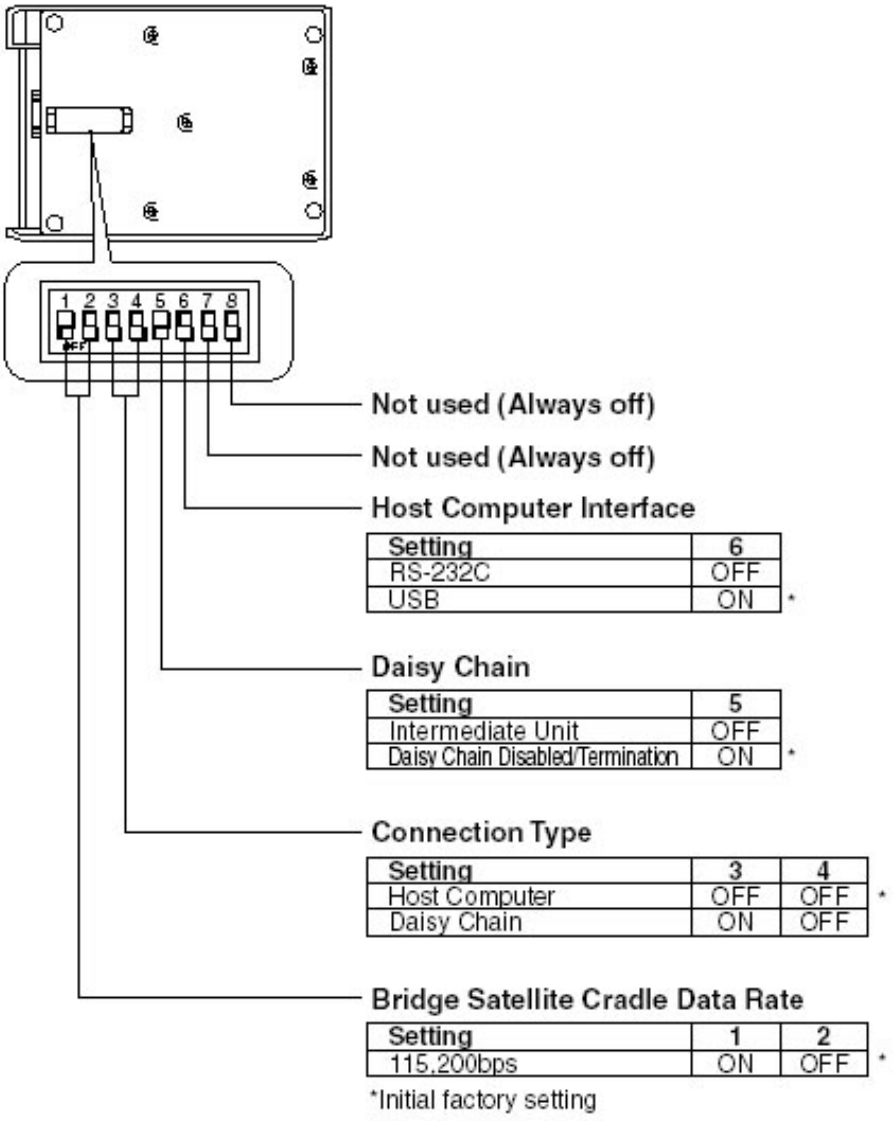

1 2 3 4 5 6 7 8
Not used (Always off)
Not used (Always off)
Host Computer Interface
Setting | 6
RS-232C | OFF
USB | ON *
Daisy Chain
Setting | 5
Intermediate Unit | OFF
Daisy Chain Disabled/Termination | ON *
Connection Type
Setting | 3 | 4
Host Computer | OFF | OFF *
Daisy Chain | ON | OFF
Bridge Satellite Cradle Data Rate
Setting | 1 | 2
115,200bps | ON | OFF *
*Initial factory setting

Figure 2.6

Note:
Other DIP switch settings are used for testing and inspection purposes. Because of this, you should never use any DIP settings other than those described above.

## 2.4 DT-9721CHGE

Following tables explain about the specifications of the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

Table 2.9

| Parameter | Specification | Remark |
|---|---|---|
| Charge method | Fixed voltage-and-current | With the current limiter |
| Charge period | Approximately 3 hours until the LED goes out | See note. |
| Consumption power | 18 W | |
| Input | 39 VA (at AC240V) | |
| Weight | Approx. 140 g | |
| Dimensions | Approx. 56 (W) x 44 (H) x 107 (D) mm | |

Note:
When the LED goes out, charging the battery is complete nearly 90 percent from its fully charged level. Leave the battery pack on the charger for another one hour after the LED went out to make the battery pack be fully charged.

### Status Indication with LEDs

The following table explains the status indicated by the LEDs on the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

Table 2.10

| Parameter | | | Specification | Remark |
|---|---|---|---|---|
| LED | | | | |
| | Power status indicator ("POWER") | Power to the charger is not supplied. | LED OFF | |
| | | Power to the charge is supplied normally. | LED ON in green | |
| | Charge status indicator ("DATA") | Charging the battery is completed | LED OFF | |
| | | Charging the battery started. | LED ON in orange | |

## 2.5 DT-9723LIC

The following table explains about the specifications of the Battery packs (DT-9723LIC, DT-9723LIC-CN).

Table 2.11

| Parameter | Specification | Remark |
|---|---|---|
| Rated capacity | 2,200 mAh | - Discharge at the rate of 0.2C<br>- Discharge cut-off voltage at 5.0V |
| Rated output voltage | 7.4 V | |
| Weight | Approx. 110 g | |
| Dimensions | Approx. 39 (W) x 21 (H) x 71 (D) mm | |

## 2.6 AD-S10095A

The following table explains the hardware specifications of AC Adaptors (AD-S10095AE, AD-S10095AU).

Table 2.12

| Parameter | | Specification | Remark |
|---|---|---|---|
| Original manufacturer's model no. | | SA115B-09U | Manufactured by Sino-American Electronic Co., Ltd. |
| Input requirements | Rated input voltage | AC100 to 240V | |
| | Input voltage tolerance | AC90 to 264V | |
| | Nominal frequency | 50 Hz | 47 to 63 Hz |
| | Input current | 400mA (Max.) | 100VAC/50Hz with full road |
| Output requirements | Rated output voltage | DC9.5V±5% | |
| | Rated output current | DC1.0A | |
| | Minimum output current | 0 A | |
| | No load power consumption | 0.5 W or less | - Input 240VAC/50Hz<br>- Ambient temperature 25ºC |
| | Load regulation | Less than ±5% | |
| | Ripple noise | 150 mVp-p (max.) | Output 9.5VDC |
| Efficiency | 75% (minimum) | | Input 100VAC/50Hz with full road |
| | 75% (minimum) | | Input 240VAC/50Hz with full road |
| Dielectric strength | AC3.0 KV/5mA | | 1 second |
| Insulation resistance | DC500V 100MΩ or more | | 1 minute |
| Leakage current | 0.25 mA or less | | Input 240VAC/50Hz |
| Dimensions | Approx. 78 (D) x 50 (W) x 30 (H) mm | | |
| Weight | Approx. 118 g | | |

## 2.7 AD-S42120B

The following table explains the hardware specifications of the AC Adaptors (AD-S42120BE, AD-S42120BE-CN).

Table 2.13

| Parameter | | Specification | Remark |
|---|---|---|---|
| Original manufacturer's model no. | | SA145A-1240U-6 | By Sino-American Electronic Co., Ltd. |
| Type | | Switching regulator | |
| Input requirements | Rated input voltage | 100 to 240VAC | |
| | Input voltage tolerance | 90 to 264VAC | |
| | Nominal frequency | 50 or 60 Hz | |
| | Frequency tolerance | 47 to 63 Hz | |
| | Input current | 1200mA (maximum) | At input 100VAC/50Hz with full load |
| | No load power consumption (Off mode) | 0.5W or less | At input 240VAC/50Hz |
| | Inrush current | 80A or less | - At input 100VAC to 240VAC<br>- At cold start, maximum load. |
| | Average efficiency | 83.6% (minimum) | - At input 115VAC/60Hz and 230VAC/50Hz with 25%, 50%, 75% and 100% load |
| | Leakage current | 0.25 mA or less | At input 240VAC/50Hz |
| Output requirements | Rated output voltage | DC12V | |
| | Rated output current | DC3.5A | |
| | Rated output power | 42W | |
| | Minimum output current | 0 A | |
| | Line regulation | ±2% or les | At full load and ±10% input voltage |
| | Load regulation | ±5% or less | |
| | Ripple noise | 100 mVp-p or less | At O/P=12VDC, full load |
| Protections | Over load protection current | 4.2 to 6.2 A | At input 100 to 240VAC |
| | Over voltage protection | Clamp 190% output voltage maximum | |
| Hi-Pot Test (Dielectric strength) | AC3.0 KV for 1 second, 5mA (leak current) or less | | |
| Insulation resistance | DC500V for 1 minute, 100MΩ or more | | |
| Dimensions | Approx. 111 (D) x 50 (W) x 31 (H) mm | | |
| Weight | Approx. 275 g | | |

## 2.8 AD-S10095A

Table 2.14

| Parameter | | Specification | Remark |
|---|---|---|---|
| Original manufacturer's model no. | | SA115B-09U | By Sino-American Electronic Co., Ltd. |
| Input requirements | Rated input voltage | AC100 to 240V | |
| | Input voltage tolerance | AC90 to 264V | |
| | Nominal frequency | 50 Hz | 47 to 63 Hz |
| | Input current | 400mA (Max.) | 100VAC/50Hz with full road |
| Output requirements | Rated output voltage | DC9.5V±5% | |
| | Rated output current | DC1.0A | |
| | Minimum output current | 0 A | |
| | No load power consumption | 0.5 W or less | Input 240VAC/50Hz Ambient temperature 25ºC |
| | Load regulation | Less than ±5% | |
| | Ripple noise | 150 mVp-p (max.) | Output 9.5VDC |
| Efficiency | 75% (minimum) | | Input 100VAC/50Hz with full road |
| | 75% (minimum) | | Input 240VAC/50Hz with full road |
| Dielectric strength | AC3.0 KV, 5mA | | 1 second |
| Insulation resistance | DC500V 100MΩ or more | | 1 minute |
| Leakage current | 0.25 mA or less | | Input 240VAC/50Hz |
| Dimensions | Approx. 78 (D) x 50 (W) x 30 (H) mm | | |
| Weight | Approx. 118 g | | |

## 2.9 HA-B34AT

The following table explains about the specifications of the Battery Charger Car Mount Unit (HA-B34AT, HA-B34AT-CN).

Table 2.14

| Specification | | Remark |
|---|---|---|
| Weight | Approx. 700 g | In the status to mount on Cradle-type Battery Charger. |
| Dimensions | Approx. 130 (W) x 206 (D) x 104 (H) mm | |

## 2.10 HA-B90DCV

The following table explains about the specifications of the Screen Protect Cover.

Table 2.15

| Specification | | Remark |
|---|---|---|
| Weight | Approx. 28 g | |
| Dimensions | Approx. 94 (W) x 85 (D) mm | Projection is not included. |

## 2.11 HA-B93PH

The following table explains about the specifications of the Formed Sheet Paper Holder (HA-B93PH, HA-B93PH-CN).

Table 2.16

| Specification | | Remark |
|---|---|---|
| Weight | Approx. 55 g | |
| Dimensions | Approx. 108 (W) x 47 (D) x 21 (H) mm | Projection is not included. |

# 3. Product Identification and Reference Numbers

On the back of the terminal and its options (major options only), there is a bar code and numbers printed on label as shown in Figure 3.1 below.
This bar code is represented by 15 digits of Code128 symbology and by alphanumeric characters beneath the bar code. The numbers 1 to 9 in the figure represent identification and references of the terminal while the numbers 10 to 14 represent a manufacturing reference reserved by the manufacturer. See the figure below for respective meanings.

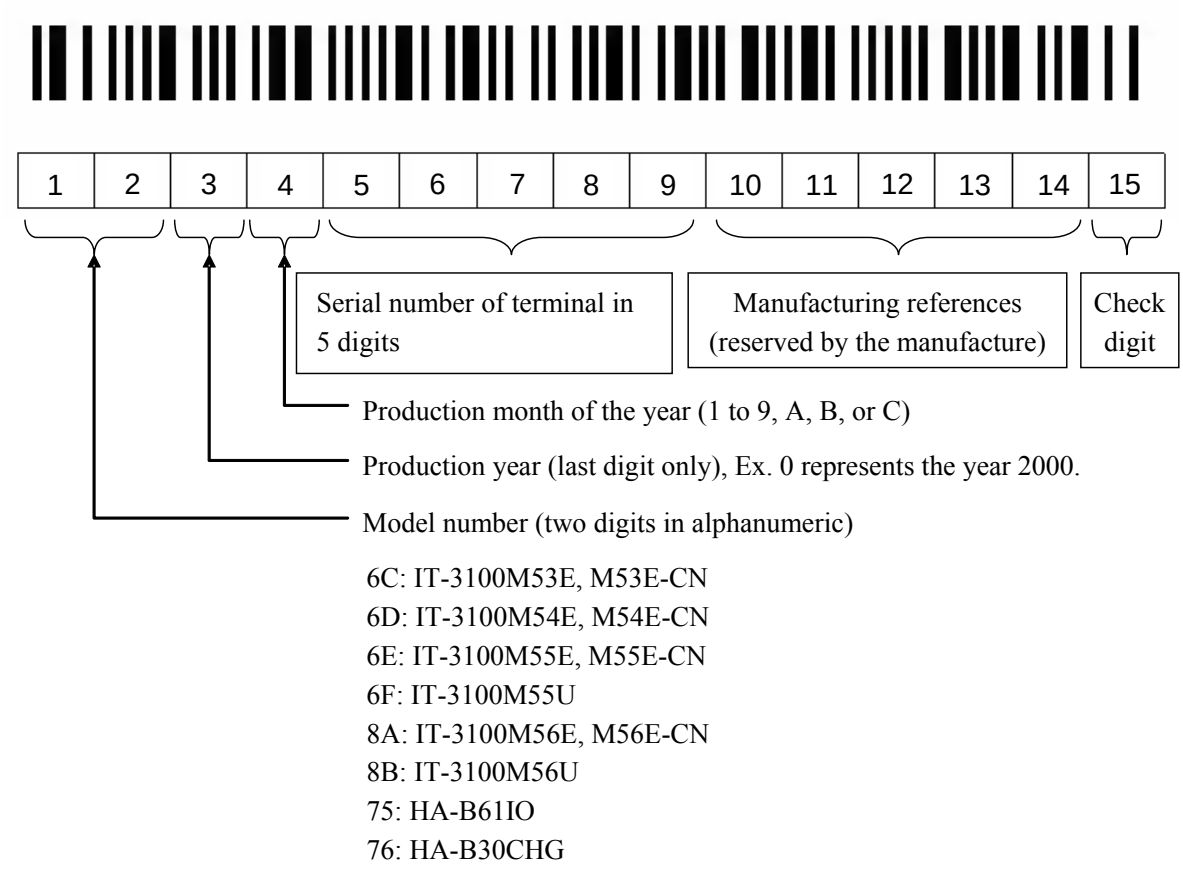

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
Serial number of terminal in 5 digits
Manufacturing references (reserved by the manufacture)
Check digit
Production month of the year (1 to 9, A, B, or C)
Production year (last digit only), Ex. 0 represents the year 2000.
Model number (two digits in alphanumeric)
6C: IT-3100M53E, M53E-CN
6D: IT-3100M54E, M54E-CN
6E: IT-3100M55E, M55E-CN
6F: IT-3100M55U
8A: IT-3100M56E, M56E-CN
8B: IT-3100M56U
75: HA-B61IO
76: HA-B30CHG

Figure 3.1

# 4. Quality References

This chapter describes about references of the terminal and its dedicated major options concerned with environmental performance, compliance, mechanical, electric durability, and etc.

## 4.1 Environment Performance

### 4.1.1 IT-3100

The following table explains environmental performance on the IT-3100 series (all models).

Table 4.1

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | -20 to 50 ºC | 0 to 40 ºC while mounting on Cradle. See note 1. |
| | For quality print | 0 to 50 ºC | HS360, ODT70TC-RAK, F200UW6, AFP235 |
| | | 5 to 35 ºC | HG56S, TLC00 |
| | Non-operation | -20 to 70 ºC | |
| Humidity | | | |
| | Operation | 10 to 80 % RH | No condensation. |
| | Non-operation | 5 to 90 % RH | |
| Storage in carton box | | | |
| | Temperature | -20 to 60 ºC | |
| | Humidity | 90 % RH or less | No condensation. |
| Dust and water-splash proof | | | |
| | | IP54 level (compliant with IEC60529) | See note 2. |

Notes:

1. It is recommended to check the print quality in the environment including at low temperature where the terminal is operated before starting the use.
2. All covers on the terminal must be closed.

### 4.1.2 HA-B30CHG

The following table explains environment performance on the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG-CN).

Table 4.2

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | 0 to 40 ºC | |
| | Storage | -10 to 50 ºC | |
| Humidity | | | |
| | Operation | 30 to 80 % RH | No condensation |
| | Storage | 30 to 90 % RH | |
| Storage in carton box | | | |
| | Temperature | -10 to 50 ºC | |
| | Humidity | 30 to 90 % RH | No condensation |

### 4.1.3 HA-B61IO

The following table explains environment performance on the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN).

Table 4.3

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | 0 to 40 ºC | |
| | Storage | -10 to 50 ºC | |
| Humidity | | | |
| | Operation | 30 to 80 % RH | No condensation |
| | Storage | 30 to 90 % RH | |
| Storage in carton box | | | |
| | Temperature | -10 to 50 ºC | |
| | Humidity | 30 to 90 % RH | No condensation |

### 4.1.4 DT-9721CHGE

The following table explains environment performance on the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

Table 4.4

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | 0 to 40 ºC | |
| | Storage | -10 to 50 ºC | |
| Humidity | | | |
| | Operation | 30 to 80 % RH | No condensation |
| | Storage | 30 to 90 % RH | |
| Storage in carton box | | | |
| | Temperature | -10 to 50 ºC | |
| | Humidity | 90 % RH or less | No condensation |

### 4.1.5 DT-9723LIC

The following table explains environment performance on the Battery Packs (DT-9723LIC, DT-9723LIC-CN).

Table 4.5

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | Compatible with the temperature range for IT-3100 during discharge, or for the battery chargers during charge. See Table 4.1 for discharge. Or, Table 4.2 or 4.3 for charge. | |
| | Storage | Compatible with the temperature range for IT-3100. See Table 4.1. | |
| Humidity | | | |
| | Operation | Compatible with the humidity range for IT-3100 during discharge, or for the battery chargers during charge. See Table 4.1 for discharge. Or, Table 4.2 or 4.3 for charge. | |
| | Storage | Compatible with the humidity range for IT-3100. See Table 4.1. | |
| Storage in carton box | | | |
| | Temperature | -10 to 50 ºC | |
| | Humidity | 90 % RH or less | No condensation |

## 4.1.6 AD-S10095A

The following table explains environment performance on the AC Adaptors (AD-S10095AE, AD-S10095AU).

Table 4.6

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | 0 to 50 ºC | |
| | Storage | -20 to 80 ºC | |
| Humidity | | | |
| | Operation | 20 to 85 % RH | |
| | Storage | 10 to 95 % RH | |

## 4.1.7 AD-S42120B

The following table explains environmental performances on the AC Adaptors (AD-S42120BE, AD-S42120BE-CN).

Table 4.7

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | 0 to 40 ºC | |
| | Storage | -20 to 60 ºC | |
| Humidity | | | |
| | Operation | 20 to 80 % RH | |
| | Storage | 10 to 90 % RH | |

## 4.1.8 HA-B34AT

The following table explains environment performance on the Battery Charger Car Mount Unit (HA-B34AT, HA-B34AT-CN).

Table 4.8

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Operation | 0 to 40 ºC | |
| | Storage | -40 to 85 ºC | |
| Humidity | | | |
| | Operation | 30 to 80 % RH | No condensation |
| | Storage | 30 to 95 % RH | |
| Storage in carton box | | | |
| | Temperature | -10 to 50 ºC | |
| | Humidity | 90 % RH or less | No condensation |

## 4.1.9 HA-B90DCV

The following table explains environment performance on the Screen Protect Cover.

Table 4.9

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Non operation | -20 to 70 ºC | |
| Humidity | | | |
| | Non operation | 5 to 90 % RH | No condensation |
| Storage in carton box | | | |
| | Temperature | -20 to 60 ºC | |
| | Humidity | 90 % RH or less | No condensation |

## 4.1.10 HA-B93PH

The following table explains environment performance on the Formed Sheet Paper Holder (HA-B93PH, HA-B93PH-CN).

Table 4.10

| Parameter | | Specification | Condition |
|---|---|---|---|
| Temperature | | | |
| | Non operation | -20 to 70 ºC | |
| Humidity | | | |
| | Non operation | 5 to 90 % RH | No condensation |
| Storage in carton box | | | |
| | Temperature | -20 to 60 ºC | |
| | Humidity | 90 % RH or less | No condensation |

## 4.1.11 HA-B80AX

The following table explains environment performance on the RS-232C Cross Cable (HA-B80AX, HA-B80AX-CN).

Table 4.11

| Parameter | | Specification | Condition |
|---|---|---|---|
| Storage in carton box | | | |
| | Temperature | -10 to 50 ºC | |
| | Humidity | 90 % RH or less | No condensation |

## 4.2 Electrical Performance

### 4.2.1 IT-3100

The following table explains electrical performance on the IT-3100 series (all models).

Table 4.12

| Parameter | | Specification | Remark |
|---|---|---|---|
| Power consumption | | DC 4.5A, 7.4V to 10.0V | |
| Anti-static strength | | | |
| | Malfunction | ±6 KV | 150 pF/330 ohm |
| | Destruction | ±12 KV | |

### 4.2.2 HA-B30CHG

The following table explains electrical performance on the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG-CN).

Table 4.13

| Parameter | | Specification | Remark |
|---|---|---|---|
| Current consumption | | Approx. 0.1 A | When IT-3100 is not mounted on. |
| | | Approx. 2.2 A | While supplying power and transmitting data. |
| Voltage | | DC12V±5% | |
| Anti-static strength | | | |
| | Malfunction | ±6 KV | 150 pF/330 ohm |
| | Destruction | ±12 KV | |
| Line noise strength (Level of malfunction) | | 1,000 V | - Pulse frequency : 5 KHz<br>- Burst cycle : 300 milliseconds<br>- No. of pulses : 75 pcs<br>- Burst period : 15 milliseconds |
| Power interruption | | 10 milliseconds or less | |

### 4.2.3 HA-B61IO

The following table explains electrical performance on the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN).

Table 4.14

| Parameter | | Specification | Remark |
|---|---|---|---|
| Current consumption | | Approx. 0.1 A | When IT-3100 is not mounted on. |
| | | Approx. 2.2 A | While supplying power and transmitting data. |
| Voltage | | DC12V±5% | |
| Anti-static strength | | | |
| | Malfunction | ±6 KV | 150 pF/330 ohm |
| | Destruction | ±12 KV | |
| Line noise strength (Level of malfunction) | | 1,000 V | - Pulse frequency : 5 KHz<br>- Burst cycle : 300 milliseconds<br>- No. of pulses : 75 pcs<br>- Burst period : 15 milliseconds |
| Power interruption | | 10 milliseconds or less | |

### 4.2.4 DT-9721CHGE

The following table explains electrical performance of the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

Table 4.15

| Parameter | | Specification | Remark |
|---|---|---|---|
| Anti-static strength | | | |
| | Malfunction | 8 KV | 200pF/100 ohm |
| | Destruction | 10 KV | |
| Power interruption | | 200 milliseconds | |

### 4.2.5 DT-9723LIC

The following table explains electrical performance on the Battery Packs (DT-9723LIC, DT-9723LIC-CN).

Table 4.16

| Parameter | | Specification | Remark |
|---|---|---|---|
| Anti-static strength | | | |
| | Malfunction | 6 KV (contact) or 8KV (in air) | |
| | Destruction | 8 KV (contact) or 15KV (in air) | |

## 4.2.6 AD-S10095A

The following table explains electrical performance on the AC Adaptors (AD-S10095AE, AD-S10095AU).

Table 4.17

| Parameter | Specification | Remarks |
|---|---|---|
| ESD | Contact : ≥4KV | |
| | Non-contact: ≥8KV | |
| RS | Frequency: 80MHz to 1.0GHz<br>Field strength : 3V/M | |
| EFT | 1.0 KV on input AC power ports | |
| Surge | Line to line : ±1KV (peak) | |
| | Line to earth (ground) : ±2 KV (peak) | |

## 4.2.7 AD-S42120B

The following table explains electrical performance on the AC Adaptors (AD-S42120BE, AD-S42120BE-CN).

Table 4.18

| Parameter | | Specification | Remark |
|---|---|---|---|
| Withstanding noise | | | |
| | Lighting surge | L-L: 1.0 KV, L-FG: 2.5 KV | No damage. |
| | Anti-static strength (ESD) | 8 KV | No malfunction and no damage. |
| | Implant noise | L-L, L-FG: 1 KV | No malfunction and no damage. |

## 4.3 Mechanical Performance

### 4.3.1 IT-3100

The following table explains mechanical performance, vibration, and drop impact on the IT-3100 series (all models).

Table 4.19

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration (in package) | | 1.5 G or less | - 10 to 55 Hz<br>- In X, Y and Z directions<br>- Reciprocally for 30 minutes<br>- While the power on the terminal is being turned on. |
| Impact durability (in height of fall) | | | |
| | In bare condition | 120 cm | Onto concrete surface, one time on each of the 6 sides and 4 corners. |
| | In individual carton box | 70 cm or less | Onto concrete surface, one time on each of the 6 sides, 1 corner, and 3 edges. |
| | In master carton box | 50 cm or less | |

### 4.3.2 HA-B30CHG

The following table explains mechanical performance, vibration, and drop impact on the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG-CN).

Table 4.20

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration (in package) | | 1.5 G or less | - 10 to 55 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 30 minutes<br>- While powered on (only turn on display) |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm | One time for 6 faces onto concrete surface |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges |
| | In master carton box | 50 cm or less | |

### 4.3.3 HA-B61IO

The following table explains mechanical performance, vibration, and drop impact on the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN).

Table 4.21

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration (in package) | | 1.5 G or less | - 10 to 55 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 30 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm | One time for 6 faces onto concrete surface |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges |
| | In master carton box | 50 cm or less | |

### 4.3.4 DT-9721CHGE

The following table explains mechanical performance, vibration, and drop impact on the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

Table 4.22

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 0.75 G | - 10 to 55 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 30 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm | One time for 6 faces onto a piece of lauan |
| | In individual carton box | 70 cm | One time for 6 faces, 1 corner and 3 edges |
| | In master carton box | 70 cm | |

## 4.3.5 DT-9723LIC

The following table explains mechanical performance, vibration, and drop impact on the Battery Packs (DT-9723LIC, DT-9723LIC-CN).

Table 4.23

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 1.5 G or less | - 10 to 55 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 30 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm or less | One time for 6 faces onto P-tile surface. |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges onto concrete surface. |
| | In master carton box | 70 cm or less | |

## 4.3.6 AD-S10095A

The following table explains mechanical performance, vibration, and drop impact on the AC Adaptor (AD-S10095AE, AD-S10095AU).

Table 4.24

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 0.5 G or less | - 10 to 100 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 10 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm | One time for 6 faces onto P-tile surface. |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges onto concrete surface. |
| | In master carton box | 70 cm or less | |

## 4.3.7 AD-S42120B

The following table explains mechanical performance, vibration, and drop impact on the AC Adaptor (AD-S42120BE, AD-S42120BE-CN).

Table 4.25

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 0.5 G or less | - 10 to 100 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 10 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm | One time for 6 faces onto P-tile surface. |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges onto concrete surface. |
| | In master carton box | 70 cm or less | |

## 4.3.8 HA-B34AT

The following table explains mechanical performance, vibration, and drop impact on the battery charger car mount unit (HA-B34AT, HA-B34AT-CN).

Table 4.26

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 3.0 G or less<br>(See notes 1 and 2.) | - 5 to 200 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 2 hours |
| | | | - 5 to 170 Hz<br>- In Z directions<br>- Reciprocally for 4 hours |
| Impact durability (in height of fall) | | | |
| | In bare condition | 70 cm<br>(See note 2.) | One time for 6 faces onto concrete surface |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges |
| | In master carton box | 70 cm or less | |

Notes:

1. When the battery pack and the cover for the battery charger car mount unit are attached to IT-3100.
2. When IT-3100 is mounted on the cradle-type battery charger.

## 4.3.9 HA-B90DCV

The following table explains mechanical performance, vibration, and drop impact on the screen protect cover.

Table 4.27

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 1.5 G or less<br>(See note.) | - 10 to 55 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 30 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 120 cm<br>(See note.) | One time for 6 faces and 4 corner onto concrete surface |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges onto concrete surface |
| | In master carton box | 70 cm or less | |

Note:
HA-B90DCV is attached on IT-3100 for the assessment test.

## 4.3.10 HA-B93PH

The following table explains mechanical performance, vibration, and drop impact on the formed sheet paper holder (HA-B93PH, HA-B93PH-CN).

Table 4.28

| Parameter | | Specification | Condition |
|---|---|---|---|
| Resistance to vibration | | 1.5 G or less<br>(See note.) | - 10 to 55 Hz<br>- In X, Y, and Z directions<br>- Reciprocally for 30 minutes |
| Impact durability (in height of fall) | | | |
| | In bare condition | 120 cm<br>(See Note) | One time for 6 faces and 4 corner onto concrete surface |
| | In individual carton box | 70 cm or less | One time for 6 faces, 1 corner and 3 edges onto concrete surface |
| | In master carton box | 70 cm or less | |

Note:
HA-B93PH is attached on IT-3100 for the assessment test.

## 4.3.11 HA-B80AX

The following table explains mechanical performance, vibration, and drop impact on the RS-232C cross cable (HA-B80AX, HA-B80AX-CN).

Table 4.29

| Parameter | | Specification | Condition |
|---|---|---|---|
| Impact durability (in height of fall) | | | |
| | In individual carton box | 70 cm | One time for 6 faces, 1 corner, and 3 edges |
| | In master carton box | 70 cm | |

## 4.4 Reliability

### 4.4.1 IT-3100

The following table explains reliability of the main parts on the IT-3100 series (all models).

Table 4.30

| Parameter | | Specification | Remark/Condition |
|---|---|---|---|
| Backlight | | 10,000 hours | At half-life period in ordinary temperature |
| MTBF | | 20,000 hours | Electronic parts only |
| No. of times of installing and removing the paper holder to/from the terminal | | 500 times | |
| No. of times of opening and closing the paper outlet cover | | 5,000 times | |
| No. of times of cutting paper with the cutter on the printer | | 15,000 times or greater | |
| Printer life | | 50 Km<br>(paper feeding length) | In the direction of paper feeding.<br>With print ratio of 25% (excluding label papers) |
| Trigger key | | 1,000,000 times | For each R Trigger key and L Trigger key. |
| Other keys | | 500,000 times | For each key. |
| Touch panel | Tapping with the stylus | 800,000 times or more | With 0.8R polyester stylus with load of 250 g applied |
| | Writing | 100,000 characters with Katakana characters | |
| No. of times of mounting and dismounting the terminal on/from the cradle | | 10,000 times | |
| No. of times of connecting and removing the power jack of AC Adaptor | | 1,000 times | |
| No. of times of opening and closing the power jack cover | | 1,000 times | |
| No. of times of installing and removing the battery pack to/from the battery compartment | | 5,000 times | |
| No. of times of opening and closing the battery pack cover | | 5,000 times | |
| No. of times of installing and removing an SD memory card to/from the slot | | 5,000 times | |

Continue.

| | | |
|---|---|---|
| No. of times of opening and closing the SD memory card cover | 5,000 times | |
| No. of times of installing and removing a PC card to/from the PC card slot | 5,000 times | |
| No. of times of opening and closing the PC card slot cover | 5,000 times | |
| No. of times of installing and removing a device to/from the 14-pin serial connector on the terminal | 5,000 times | |
| No. of times of opening and closing the 14-pin interface cover | 5,000 times | |
| No. of times of opening and closing the 8-pin interface cover | 5,000 times | |
| No. of times of reading data on magnetic card via the MCR | 200,000 times | |
| No. of times of installing and removing the splash protect cover | 500 times | |
| No. of times of opening and closing the splash protect cover | 5,000 times | |
| No. of times of mounting and dismounting the neck strap | 100 times | |
| Strength of the neck strap | Tensile strength 15 Kg per 5 seconds | |
| Durability of hooks for the hand strap on the terminal | 100 times | |
| Strength of the hand strap | Tensile strength 15 Kg per 5 seconds | |
| Mounting and removing the stylus to/from the stylus holder | 20,000 times | |
| No. of times of installing and removing the screen protect cover to/from the terminal | 500 times | |
| No. of times of opening and closing the screen protect cover | 5,000 times | |
| CMOS imager | 70,000 hours | |

## 4.4.2 HA-B30CHG

The following table explains reliability of the main parts on the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG-CN).

Table 4.31

| Parameter | | Specification | Remark/Condition |
|---|---|---|---|
| MTBF for electronics parts | | 50,000 hours | |
| Mounting and removing IT-3100 to/from Cradle | | 20,000 times | |
| Switch | Power switch | 5,000 times | |
| | DIP switch | 10 times | |
| No. of ON/OFF times of the connector | USB | 500 times | |
| | RS-232C | 500 times | |
| | RS-422 | 100 times | |
| No. of connecting and removing the power jack | | 1,500 times | |

## 4.4.3 HA-B61IO

The following table explains reliability of the main parts on the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN).

Table 4.32

| Parameter | | Specification | Remark/Condition |
|---|---|---|---|
| MTBF for electronics parts | | 50,000 hours | |
| Mounting and removing the terminal to/from the Cradle | | 20,000 times | |
| Switch | Power switch | 5,000 times | |
| | DIP switch | 10 times | Applicable to HA-B61IO and HA-B61IO-CN. |
| No. of connecting and removing the cable | USB | 500 times | Applicable to HA-B61IO and HA-B61IO-CN. |
| | RS-232C | 500 times | Applicable to HA-B61IO and HA-B61IO-CN. |
| | RS-422 | 100 times | Applicable to HA-B61IO and HA-B61IO-CN. |
| No. of connecting and removing the AC Adaptor on the power jack | | 1,500 times | |

### 4.4.4 DT-9721CHGE

The following table explains about reliability on the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN).

Table 4.33

| Parameter | Specification | Remark/Condition |
|---|---|---|
| MTBF for electronics parts | 300,000 hours | |

### 4.4.5 DT-9723LIC

The following table explains reliability on the Battery Packs (DT-9723LIC, DT-9723LIC-CN).

Table 4.34

| Parameter | Specification | Remark/Condition |
|---|---|---|
| Battery charge-discharge cycle | 90 percent of the capacity at 300 cycles<br>70 percent of the capacity at 500 cycles | - Environment temperature: 23±2 ºC<br>- Discharge current: 1.1A constant current |

### 4.4.6 AD-S10095A

The following table explains reliability on the AC Adaptor (AD-S10095AE, AD-S10095AU).

Table 4.35

| Parameter | Specification | Remark/Condition |
|---|---|---|
| MTBF for electronics parts | 50,000 hours | |

### 4.4.7 AD-S42120B

The following table explains reliability on the AC Adaptor (AD-S42120BE, AD-S42120BE-CN).

Table 4.36

| Parameter | Specification | Remark/Condition |
|---|---|---|
| MTBF for electronics parts | 100,000 hours | |

## 4.5 Compliance

### 4.5.1 IT-3100

The following tables explain compliance with the relevant standards and directive requirements set mandatory by the respective countries and the region.

Table 4.37

| Category | Standards and Requirement | M53E ( -CN) | M54E ( -CN) | M55E ( -CN) | M55U | M56E ( -CN) | M56U | Remarks |
|---|---|---|---|---|---|---|---|---|
| EMC | FCC part15B | Yes | Yes | -- | Yes | -- | Yes | |
| | EN55022 | Yes | Yes | Yes | -- | Yes | -- | EMI |
| | EN55024 | Yes | Yes | Yes | -- | Yes | -- | EMS |
| | EN61000-3-2 | Yes | Yes | Yes | -- | Yes | -- | High frequency |
| | EN61000-3-3 | Yes | Yes | Yes | -- | Yes | -- | Flicker |
| | MIC | Yes | Yes | Yes | -- | Yes | -- | Korea |
| | GB9254 | Yes | Yes | -- | -- | Yes | -- | CCC certification |
| | GB17625.1 | Yes | Yes | -- | -- | Yes | -- | |
| | CNS13438 | Yes | Yes | -- | -- | Yes | -- | BSMI |
| | AS/NZS CISPR22 | Yes | Yes | Yes | -- | Yes | -- | See note. |
| Laser/ LED | FDA CFR21 | -- | -- | -- | Yes | -- | Yes | |
| | EN60825 | -- | -- | Yes | -- | Yes | -- | |
| | IEC60825 | -- | -- | Yes | -- | Yes | -- | |
| Radio Type Approval (Bluetooth) | FCC part15C | Yes | Yes | -- | Yes | -- | Yes | |
| | RSS-GEN | Yes | Yes | -- | Yes | -- | Yes | Canada |
| | RSS-210 | Yes | Yes | -- | Yes | -- | Yes | Canada |
| | EN300328 | Yes | Yes | Yes | -- | Yes | -- | Radio |
| | EN301489 | Yes | Yes | Yes | -- | Yes | -- | EMS |
| | MIC | Yes | Yes | Yes | -- | Yes | -- | Korea |
| | SRRC | Yes | Yes | -- | -- | Yes | -- | China |
| | NCC | Yes | Yes | -- | -- | Yes | -- | Taiwan |
| Bluetooth Logo | Ver. 1.0 | Yes | Yes | Yes | Yes | Yes | Yes | |
| Safety | UL60950 | Yes | Yes | -- | Yes | -- | Yes | |
| | cUL60950 | -- | -- | -- | -- | -- | -- | |
| | EN60950-1 | Yes | Yes | Yes | Yes | Yes | Yes | |
| | AS/NZS4417 or 60950 | Yes | Yes | Yes | -- | Yes | -- | |
| | GB4943 | Yes | Yes | -- | -- | Yes | -- | CCC certification |
| | CNS14336 | Yes | Yes | -- | -- | Yes | -- | BSMI |
| RoHS | Directive 2002/95/EC | Yes | Yes | Yes | -- | Yes | -- | Europe |
| | Ministerial Decree No. 39 | Yes | Yes | Yes | -- | Yes | -- | China |

Yes; Applicable

Note:
Applicable to AC Adaptor for Australia and New Zealand.

## 4.5.2 HA-B30CHG

The following table explains compliance with the relevant standards and requirements set mandatory on the Cradle-type Battery Charger (HA-B30CHG, HA-B30CHG-CN) by the respective countries and region.

Table 4.38

| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | FCC Part15B Class B | |
| | EN55022 | |
| | EN55024 | |
| | GB9254 | |
| | GB17625.1 | |
| Safety | UL1950 | |
| | EN60950 | |
| | GB4943 | |
| RoHS | EU Directive 2002/95/EC | Europe |
| | Ministerial Decree No. 39 | China |

## 4.5.3 HA-B61IO

The following table explains compliance with the relevant standards and requirements set mandatory on the Bridge Satellite Cradle (HA-B61IO, HA-B61IO-CN) by the respective countries and region.

Table 4.39

| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | FCC Part15B Class B | |
| | EN55022 | |
| | EN55024 | |
| | GB9254 | |
| | GB17625.1 | |
| Safety | UL1950 | |
| | EN60950 | |
| | GB4943 | |
| RoHS | EU Directive 2002/95/EC | Europe |
| | Ministerial Decree No. 39 | China |

### 4.5.4 DT-9721CHGE

The following table explains compliance with the relevant standards and requirements set mandatory on the Battery Charger (DT-9721CHGE, DT-9721CHGE-CN) by the respective countries and region.

Table 4.40

| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | FCC Part15B Class B | |
| | EN55022 | |
| | EN55024 | |
| | EN61000-3-2 | |
| | EN61000-3-3 | |
| | GB9254 | |
| | GB17625.1 | |
| Safety | UL1310 CSA C22.2 No. 223 (cUL) | |
| | EN60950 | |
| | GB4943 | |
| RoHS | EU Directive 2002/95/EC | Europe |
| | Ministerial Decree No. 39 | China |

### 4.5.5 DT-9723LIC

The following table explains compliance with the standards and requirements set mandatory on the Battery Packs (DT-9723LIC, DT-9723LIC-CN) by the respective countries and region.

Table 4.41

| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | EN61000-3-2 | |
| | EN61000-3-3 | |
| Safety | UL1310 CSA C22.2 No. 223 (cUL) | USA and Canada |
| | UL60950 | |
| RoHS | EU Directive 2002/95/EC | Europe |
| | Ministerial Decree No. 39 | China |

## 4.5.6 AD-S10095A

The following table explains compliance with relevant standards set mandatory on the AC Adaptors (AD-S10095AE, AD-S10095AU).

Table 4.42

| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | EN55022 | |
| | CISPR22 | |
| Safety | EN60950 | |
| RoHS | EU Directive 2002/95/EC | Europe |

## 4.5.7 AD-S42120B

The following table explains compliance with the relevant standards and requirements set mandatory on the AC Adaptor (AD-S42120BE, AD-S42120BE-CN) by the country and region.

Table 4.43

| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | UL60950 3rd edition | |
| | CAN/CSA C222 NO.60950-00 1st edition | |
| | EN60950 | |
| | AS/NZS60950 | |
| | IEC60950 | CB certificate |
| | K60950-1 | |
| | CNS14336 | |
| | GB4943 | |
| Safety | CFR47 FCC Part 15 Subpart B | |
| | EN55022 | |
| | EN55024 | |
| | EN61000-3-2 | |
| | EN61000-3-3 | |
| | GB9254 | |
| | GB17625.1 | |
| | CNS13438 | |
| | AZ/NZS CISPR22 | |

## 4.5.8 HA-B34AT

The following table explains compliance with relevant safety standards and requirement set mandatory on the battery charger car mount unit (HA-B34AT, HA-B34AT-CN) by the respective countries and region.

Table 4.44

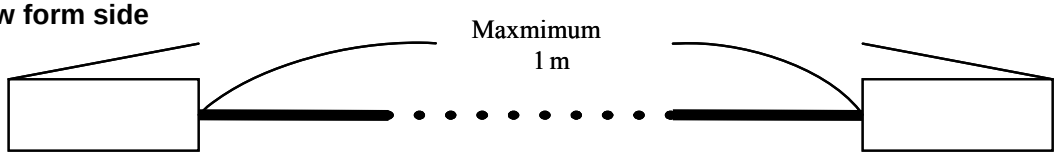
| Category | Standards/Requirement | Remark |
|---|---|---|
| EMC | ECE Regulation 10.02 | |

# 5. Cable Specifications

## 5.1 DT-888RSC

### For Chain Connection in Short Length (1 meter or less)

**View form side**




**View form top**

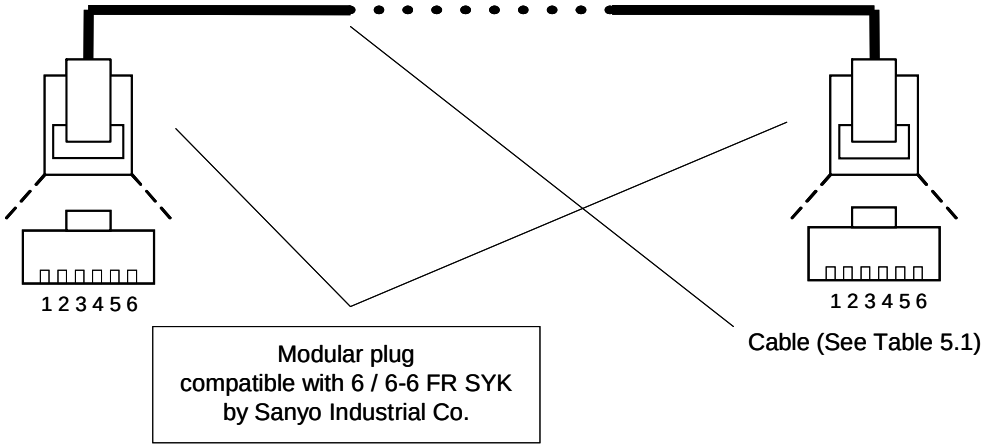



Figure 5.1

Table 5.1 Specifications of the cable

| Cable | | |
|---|---|---|
| Core wire | Conductor | 20/0.1A |
| | Insulator | Semi-hard material P.V.C. |
| | Finish of external shape | 20/0.1A |
| Sheath | Insulator | P.V.C. |
| | Finish of external shape | Ø4.3±0.1mm |
| Characteristics | Conductance resistance | 0.12Ω per meter or less |
| | Insulation resistance | 50MΩ or more |

### Wiring (pin-to-pin straight connection)

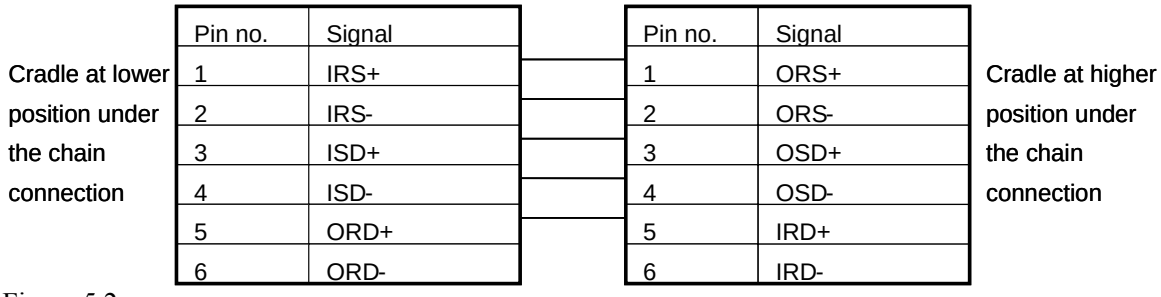
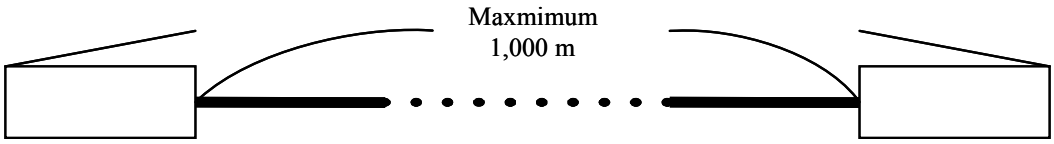



Figure 5.2

## For Chain Connection in Long Length (1 meter or longer)

For a cable with its length longer than one meter, no dedicated cable from CASIO is available. Arrange one locally available that can meet the specifications described below.

**View form side**




**View form top**

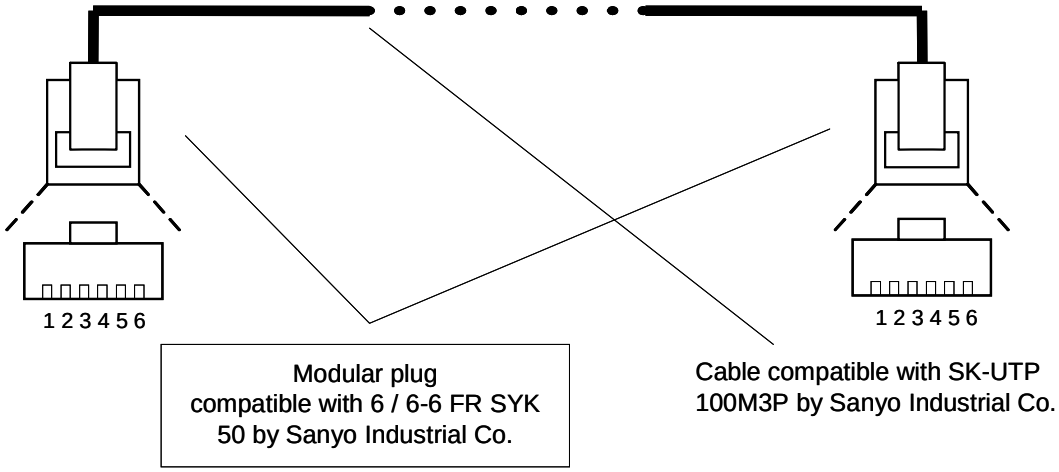

1 2 3 4 5 6
1 2 3 4 5 6
Modular plug
compatible with 6 / 6-6 FR SYK
50 by Sanyo Industrial Co.
Cable compatible with SK-UTP
100M3P by Sanyo Industrial Co.

Figure 5.3

## Wiring (pin-to-pin straight/twist-pair connection)

Cradle at lower position under the chain connection

| Pin no. | Signal |
|---|---|
| 1 | IRS+ |
| 2 | IRS- |
| 3 | ISD+ |
| 4 | ISD- |
| 5 | ORD+ |
| 6 | ORD- |

| Pin no. | Signal |
|---|---|
| 1 | ORS+ |
| 2 | ORS- |
| 3 | OSD+ |
| 4 | OSD- |
| 5 | IRD+ |
| 6 | IRD- |

Cradle at higher position under the chain connection

Figure 5.4

## 5.2 DT-887AXA

The dedicated RS-232C cross cable (DT-887AXA, DT-887AXA-CN) is available for connecting the terminal to a PC via the 9-pin serial interface on the HA-B61IO (Bridge Satellite Cradle). See the specifications below.

### Length; 1.5 m

### Wiring

Cradle side

| Pin no. | Signal |
|---|---|
| 1 | CD |
| 2 | RD |
| 3 | SD |
| 4 | ER |
| 5 | SG |
| 6 | DR |
| 7 | RS |
| 8 | CS |
| 9 | CI |

| Pin no. | Signal |
|---|---|
| 1 | CD |
| 2 | RD |
| 3 | SD |
| 4 | ER |
| 5 | SG |
| 6 | DR |
| 7 | RS |
| 8 | CS |
| 9 | CI |

Other device side

Figure 5.5

## 5.3 HA-B80AX

The dedicated RS-232C cross cable (HA-B80AX, HA-B80AX-CN) is available for directly connecting the terminal to a PC via the 8-pin serial interface on the terminal. See the specifications below.

### Length; 1.5 m

### Wiring

| Pin no. | Signal |
|---|---|
| 1 | SD |
| 2 | RD |
| 3 | RS |
| 4 | CS |
| 5 | Vcc |
| 6 | GND |
| 7 | ER |
| 8 | DR |

| Pin no. | Signal |
|---|---|
| 1 | CD |
| 2 | RD |
| 3 | SD |
| 4 | ER |
| 5 | GND |
| 6 | DR |
| 7 | RS |
| 8 | CS |
| 9 | CI |

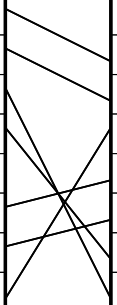


Figure 5.6

# 6. Precautions

## 6.1 Handling Precautions

### Precautions for short-term storage (1 to 2 days)

- If the IT-3100 remains unused for a long period including Saturday and Sunday, before starting holiday replace the battery pack if installed in the terminal with a fully charged battery pack. This will conserve the built-in memory backup battery and ensure retention of data on the terminal.
- If there is a possibility of the above or operator error (e.g., a fully charged battery has not been inserted), practice system operation that maintains a backup to avoid loss of data due to consumption of the batteries.

### Precautions for long-term storage (over one week)

- Prior to a long-term storage (over one week), always back-up data in the terminal to other memory storage device. In addition, remove the lithium-ion battery pack before storage. This can minimize overly discharging the installed battery and minimize consumption of the memory backup battery.
- Do not store the removed battery pack at high temperature. Otherwise, it will discharge at an accelerated rate. Note that the capacity after the battery if it is not used for 10 days at 60°C will be 65%, and that after 20 days at 60°C will be 55%.

### Battery Pack

- Never contact the “+” and “-“ terminals with metal objects such as a wire. Also, do not carry and store the battery with a metal necklace or hair pin. Otherwise, the battery pack may be short-circuited resulting in an excessive current and causing the battery to become hot, smoke, explode or catch fire.
- Neither dispose of the battery pack into a fire nor heat it. The insulation may be burnt, the gas exhaust valve or safety mechanism may be damaged, or the internal electrolyte may ignite causing the battery pack to become hot, generate smoke, explode, or ignite.
- Neither leave nor use the battery pack in a place with a high temperature (over 80°C) or close to a fire or hot stove. Should the resin separator be damaged due to excessive heat, the battery pack may be short-circuited causing it to become hot, generate smoke, explode, or ignite.
- Do not soak the battery pack in fresh water or sea water. If the protection means incorporated in the battery pack is damaged, the battery pack may become hot, smoke, explode, or ignite.
- Do not attempt to charge the battery close to a fire, in direct sunlight, or in a car parked in the sun. A heated battery pack will trigger the internal hazard protection means to stop the charging function. Or, the protection means may be damaged and the battery may be charged with an excessive current or voltage, or have abnormal chemical reactions induced to cause it to become hot, smoke, explode, or ignite.
- Do not stick a pin or nail in the battery pack. Neither hit it with a hammer nor stamp it. If this is done, the battery pack may be broken or deformed resulting in a short circuit and causing it to become hot, smoke, explode, or ignite.
- Do not hit or throw the battery pack. If the protection means incorporated in the battery pack is damaged, the battery pack may be charged with an excessive current or voltage, or have abnormal chemical reactions induced to cause it to become hot, smoke, explode, or ignite.
- Never use a battery pack that is significantly damaged or deformed. It may become hot, smoke, explode, or ignite.

- Do not attempt to solder anything directly on the battery pack surface. The insulation may be damaged or the gas exhaust valve or safety mechanism may be damaged, causing the battery pack to become hot, smoke, explode, or ignite.
- Do not use the battery pack in other device than the terminal. The performance or service life of the battery pack may be reduced or abnormal current may flow to cause it to become hot, smoke, explode, or ignite.
- When charging the battery pack use only dedicated cradles or dedicated battery charger and its AC adaptor available from CASIO, at a temperature between 0°C and 40°C. If the battery pack is charged with battery chargers other than those specified by CASIO, it may be over-charged, charged with an excessive current, or have abnormal chemical reactions induced, causing it to become hot, smoke, explode, or ignite.
- The battery pack has a specific polarity. Do not force it into the IT-3100. Check the polarity. If the battery pack is connected backwards, it can be incorrectly charged and have an abnormal chemical reaction induced, causing it to become hot, smoke, explode, or ignite.
- If the internal electrolyte of the battery pack leaks and enters the eye, do not rub the eye. Rinse the eye with a sufficient amount of clean water, such as tap water, then immediately consult with a doctor. The electrolyte can cause eye damage.